GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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BEE-MASTER DATHE asserts in *Centralblatt* that diarrhea is almost always the result of need of water; no fear of diarrhea if bees have the necessary water in the fall. I wonder if that can be possible.

ARTHUR C. MILLER is stirring up the animals again. This time it's humidity—he insists in *Am. Bee-keeper* that moisture is of exceeding importance in queen-rearing. "Who said it wasn't?" Aye, but who said it was?

W. J. DAVIS offers, in *Am. Bee Journal*, to mail 20 or 30 "umbilical cords" for a stamp to pay postage. I wouldn't waste a good stamp in that way; they would be too much dried on the journey to be properly attached to the young queens.

"PUT YOURSELF in his place." That resolution, p. 322, shows that York State bee-keepers want themselves known as the producers of honey. So do I. So do we all. But if I were buying and selling, I'd want my name known as the man from whom grocers could always count on getting good honey, whether comb or extracted. "Put yourself in his place."

I DON'T BELIEVE there is any case on record in which it was clearly proven that the killing of one bee caused a cessation of the laying-worker business. And I think there never was an analysis made without showing that a large proportion of the bees in a laying-worker colony contained eggs. [I believe you to be in error; and if I can get the time I will try to show you the record or records.—ED.]

THE COMMON BEE does not exist in Colorado—only Italians, and a very few Carniolans. So says C. P. Dadant, in *Revue Internationale*. [I do not remember seeing any blacks in Colorado. I think our friends will be wise if they never import them. But, my, oh my! there are plenty of them in California. The California yards are noted for their cross bees, because of the hybrids and blacks; at least I never saw their equal for stinging unless it was the Coggshall bees in New York, which were also hybrid.—ED.].

W. Z. HUTCHINSON, editor and foul-brood inspector, while on a tour of inspection has his editorial office in the cars, and says, "I write as well on the train as anywhere." After seeing his handwriting a good many times, I can easily believe that the jiggling of the cars would make no difference in it. But the jiggle all works out in the printing, however, and a lot of sense remains in it. [W. Z. H. is a good editorial writer; and the more of W. Z. there is in the *Review*, the better I like it. He is a good reviewer and a good editorial sifter.—ED.]

THE YOUTH'S COMPANION has commenced a serial story about some young bee-keepers' migratory performances. It opens up in an interesting manner, and I happen to know that the interest keeps up throughout the eight numbers. [I have neither seen nor read the story; but members of my family, and others with whom I have talked, speak in high praise of it. Such articles do much to educate the general public to the uses of honey—how it is produced, etc. If we can get the consuming class to know that extracted honey is honey out of the comb, we shall have accomplished much for the industry.—ED.]

A. C. MILLER says in *Review* that he is beginning to believe that bees winter well in chaff hives in spite of the packing rather than on account of it. He prefers black tarred paper tied about a common hive. [Our friend Mr. Miller will have to change his opinion, I am thinking, after he has tested the paper as carefully as we have. I once had the idea that paper tied around a common hive would winter bees as well as a chaff-packed hive. We fixed up a number of hives in that manner, setting a

close-fitting winter case over the whole; but in nearly every one of the hives so prepared the bees died, while those in the chaff-packed colonies came through in the usual good order. Some of our old readers will remember some of these experiments.—ED.]

HON. EUGENE SECOR has refused to stand for a second term in the State legislature, and has blossomed out as a florist. Eugene evidently believes in getting all the enjoyment in this life he can. How I'd like to visit his greenhouses! [Secor is wise. A busy man who does not have some side diversion or fad is to be pitied. No wonder we have so many breakdowns in the prime of life among professional men, all because they are too busy to give the brain something to think about besides business, or their regular profession. I will guarantee that our old friend gets real solid enjoyment.—ED.]

YE EDITOR has tackled a tough problem, p. 325, "Profits in the Honey Business," and he has made a good job of it too—one of the best I ever saw. A beginner might be told something like this: If bees are scarce in your region you may make a big profit on a few, the profit per colony decreasing as numbers increase. The number of bee-keepers making a living out of bee-keeping alone is exceedingly small, and the brawn and brain they have put into the business would have brought more money in some other line. If you're living for money, keep few or no bees; but if you're built right for the business, and want to have 16 ounces to the pound of health and happiness as you go along, pitch right in. [It is no little satisfaction to know that this editorial passed muster with you. I thought of you when I wrote it, and I said to myself, "There are many more like you;" and while we have no estimates on which to base exact figures, we must guess on the conservative side.—ED.]

EDITOR HUTCHINSON is out for a fight with Ernest and me, and says he's going to be good-natured about it. The idea! He thinks what is needed is more constitution rather than less constitution, and more common sense. He says: "The majority of the directors, for the past year or more, are probably gifted with as much common sense as any that we shall ever secure, yet look at the muss that they got into." Now, look here, W. Z., I didn't say that more common sense was needed by the directors. Aside from you and me they have a fair share of that commodity. The thing needed was the chance to use it. They got into that muss just because they thought they couldn't "depend a little upon common sense," but had to go by the constitution. They said, "I'm in favor of a new election, but the constitution won't allow it." If they had been free to depend on their common sense—yes, if they only had. [If I must differ with a brother-man I prefer to have him a fair-minded person like Mr. Hutchinson. I have just been having a personal conference with our friend face to face. I am on the fence. I guess I will let you and W. Z. fight it out.—ED.]

TO TEST BARRELS, instead of blowing or using a bicycle-pump, the editor of *American Bee-keeper* says, glue your lips to the bung-hole, and suck. I'm pretty sure Harry's right. Some of us can blow pretty hard, but we can suck a good deal harder, and either blowing or sucking will make the whistle where there's a leak.

P. S.—Since writing the foregoing I've read France's plan, p. 325. I still insist that you can make a louder hissing by sucking than blowing, but that bubbling business knocks me clean out. The slightest blowing will make a bubble, although not the least hissing would be heard. But, say! hold on! You say, Mr. Editor, moisten "the hissing place." So you've got to hiss before you find the place to bubble. Guess the program will be: Suck till it hisses, then moisten and blow. [Perhaps a combination of the two methods will give us the best results. It is worth much to know that sucking instead of blowing may be used advantageously in testing for leaks. I can imagine that, in testing square tin cans, it might be more effective.—ED.]

T. F. BINGHAM, in *Review*, expresses the belief that in 20 years it will be demonstrated that in a cement bee-cellar (not a house-cellar) the temperature "may go up and down from frost to 50 degrees without injury to the bees if only the air is pure and dry as it is out of doors." [I subscribe to that statement of Mr. Bingham. Why? The bees wintered in double-walled hives outdoors are protected. The only difference between such bees and those protected in the cellar is ventilation and dampness, and temperature. Now, suppose we had a cellar that is perfectly dry, with a cement bottom; that the bees in that cellar had just as much ventilation as those bees in double-walled hives outdoors. Is it not reasonable to suppose that the temperature could go up and down from frost to 50 degrees without injury to the bees? Indeed, why could not the temperature go down to zero and below, and still not kill them? The ideal cellar will be a dry one, affording a large amount of fresh air. If the temperature can be kept at approximately 45 in addition the conditions would be perfect. When we consider what the outdoor bees have to endure, I think we may safely conclude there is a great deal in Mr. Bingham's statement.—ED.]

MR. EDITOR, you're mistaken in your surmise that formalin is sprayed on combs. A special generator or vaporizer is used; the drug is heated over a lamp, and the gas is what does the business. I think there is little doubt that it will kill spores; but as its best work is done on the surface it looks as though it would be difficult to kill spores at the bottom of a cell filled with honey. You say you have reports that formaldehyde may cure foul brood *without destroying the*

healthy brood, p. 326. Surely there must be a mistake somewhere. [No mistake, doctor. I meant just what I said. An average colony having foul brood will have a very large proportion of healthy brood in the hive. When the disease is first discovered it may have no more than five per cent of the cells affected—all the rest good. Even when the disease gets well under way, there may not be more than a third of the cells diseased. What I meant was that the gas would permeate the perforated cappings of the diseased cells only—not the cappings of the healthy brood. If that were true, that which remains healthy would be safe from the effects of the gas, and could be put into the hive again to hatch out. But it may be that I am wrong in assuming that healthy sealed brood will not be killed. In talking with Mr. Hutchinson about the matter, he assumed that all the brood would be killed, as a matter of course, whether or not, and perhaps he is right.—ED.]

Mr. J. S. Sloan, continental agent for The A. I. Root Co., 10 Rue Cambaceres, Paris, France, has just published an edition of the catalog of said firm in the French language, for the use of his European patrons. It is just the size of the American catalog, and is in every way a fine piece of work.

While the editor was dictating what he has to say in reference to Mr. Hilbert's visit here, p. 376, he also mentioned privately his raspberry honey. I determined to try some, and accordingly bought two quarts of it. I had frequently seen it on the counter, but took it to be horseradish canned up. One who is at all familiar with the odor of raspberry would say at once that this honey came from that splendid honey-plant. Just now I think it is the most palatable honey I ever ate. At the table, only one criticism was offered against it. One person said it was *too* sweet. That's a good fault, surely.

Mr. W. Z. Hutchinson has just made us all glad by a visit here at Medina. He had previously done the same thing to the writer by sending him a copy of *The Artist*, a journal devoted to the discussion of fine photography. Mr. H. has an article in the last issue in regard to what constitutes a striking picture. He gives one of his own, a farm scene taken about forty miles north of Detroit. To get a good view of the field he had to mount a load of grain, and adjust the legs of his tripod as best he could. Seldom is a picture secured under such peculiar circumstances. Mr. H. is certainly an artist in this line, and may well be considered the photographer of the bee-keepers.

The *Agricultural Gazette* of New South Wales is one of the most readable journals that come to this office. It is published monthly, and contains about 100 pages devoted to every branch of agriculture, including bees. This department is under the management of Mr. Albert Gale, and he's a decided success in that line. I don't have much faith in weather-prophets; but when a general condition in summer usually follows a certain condition in spring, it forms a reasonable basis for conjecture. Concerning this matter, Mr. Gale says:

> Some years ago I made it my business to inquire of every bee-keeper I met as to what conditions of season were most favorable to the production of honey. The answers received may be summed up thus: A dry summer following a wet spring will be sure to be followed by a good flow of honey. In some parts of this State these are the conditions now prevailing, and at present in the coastal districts, especially so around about Sydney, some of the indigenous timber trees have produced abundance of bloom, and honey is coming in plentifully. This outburst of bloom is now being followed by the bees breeding *pro ratio*, and this is being followed by abnormal swarming. In my own little experimental apiary six hives threw off thirteen colonies before Christmas. Seven of these I removed to the Hawkesbury Agricultural apiary. These have thrown off seven maiden swarms, as did also one other, being an increase of upward of twenty colonies from my half-dozen.

This would indicate a good honey crop this side of the equator this summer, for the spring has been very wet, and a dry summer is likely to follow the excessively wet summer of 1902.

The following hints in regard to the proper way of serving honey on the table, and of cutting it on the dish, are certainly worthy of record:

> There are some people who object to honey, not because they dislike it as a food, but liquid honey, they say, has a tendency to become daubed on whatever it touches. Nevertheless, this is not a true bill against the use of honey, for the same may be said of jam and other similar foods. Many who object to taking liquid honey are passionately fond of honey in the comb. Of all forms of honey in the comb, none is so attractive as that in those small one-pound sections. A section of honey in virgin comb, which, as a rule, is beautiful and white, is at once attractive to the eye and tempting to the appetite. Beyond this, section honey is at once well shaped and a convenient size for table purposes. If it be carefully removed from the section frame in which it was stored, little or no honey will escape from the cells. It can be placed on the table without appearing as is sometimes the case, to float in liquid honey. I have sat at a table where beautiful sections of honey have confronted me, and beside it a *blunt* silver butter-knife. I have seen persons take this rude instrument (rude for honey purposes), thrust the point of it into the honey, and take as much as they require; but in the comb left behind, the cells are broken and torn, and the honey that escapes from the portion removed dribbles over the surface of the comb left behind. Honey sent to table in the comb should be kept as free from the liquid as possible. To do this it is only necessary to use a sharp steel knife and a little care, and that object will be accomplished.
>
> It was this desire for honey in the comb that caused shallow frames to come into use, and the beautifully white section frames were evolved for the same purpose. I know, from a marketable point of view, they are not so profitable as the production of liquid honey; but where people keep bees for their own domestic purpose this will not be taken into account.

EXTRACTED HONEY AND INCREASE, ETC.

"Mr. Doolittle, I want to ask you some questions, and have a little talk with you."

"Very well, Mr. Brown. What would you like to know?"

"Which is the better plan when working an apiary for extracted honey—to make the increase by natural swarming or by division? If by division, when is the best time to do it in latitude about 41, white clover being the main plant giving surplus?"

"You are putting the questions in pretty thick, aren't you? We will consider the swarming part first. Should we desire, never so badly, increase by natural swarming, it would be very little we should get if the colonies were worked to the best advantage for extracted honey."

"Why so?"

"Because a good yield of extracted honey is obtained only by providing the colony with an extra set, or more, of empty combs, putting the same in upper stories at the beginning of the honey-flow, or as soon as the bees have increased sufficiently to receive them without any detriment to their building up the most quickly. Bees do not swarm till the hive is well populated, and honey coming in from the fields; hence if we put on combs as above, and we must to secure the best results in extracted honey, these combs go on before any preparation for swarming is made. If I remember correctly, Editor E. R. Root once said, 'Plenty of empty combs is the best preventive for swarming,' and no truer saying was ever uttered; and by fixing the bees as we are obliged to, to secure the best results, we very nearly, if not quite, prevent all increase of a natural kind."

"Has this been your experience? I did not think it would be thus."

"In all of my experience with the extractor I have never had a single colony cast a swarm before the honey harvest was beginning to wane; and not ten per cent of the colonies thus worked ever offered to swarm at all. Therefore you will see, if you wish increase, it must be done in some way other than natural swarming, or else you will have to sacrifice your honey crop quite largely by not putting on the combs till the colonies have swarmed."

"Well, I do not wish to sacrifice my crop of honey more than I can help."

"This is as I thought it would be; therefore we have increase by division, where increase is wished, as the only way when working for extracted honey."

"That seems clear the way you put the matter. So the next thing to talk of is when that division is to be made."

"Very many of our practical apiarists tell us that, where we make increase by division, this should be done a little before the honey harvest, or at its commencement, and this is correct when working for comb-honey; but I fail to see why it need be thus where only a moderate increase is desired when one is working for extracted honey only."

"What is the argument they use?"

"The claim is made that, after division, we shall have two queens laying instead of one, and in this there is a gain."

"Can you see any gain in that?"

"No. And such reasoning is mysterious to me; for the bees which hatch from those eggs laid by the two queens, after the division, can never become honey-gatherers in the white-clover harvest, unless said harvest is much more prolonged than it ever is in this locality; so the bees from the eggs of the extra queen will become only consumers, without adding one iota to our crop of honey. Yea, more: Instead of adding to the crop of honey it will lessen the crop by just the amount that it will take to feed and nurse the brood and the young bees after emerging, which is a clear loss, instead of a gain, it appears to me."

"But, may it not be possible that the two parts would store more separately than together?"

"No. All bee-keepers whom I ever heard express themselves in this matter admit that one *strong* colony will store far more honey when kept together, if not having the swarming fever, than the same colony would if divided and placed in two separate hives, thus making two weak colonies of it. Hence, by dividing at the commencement of the harvest, or a little before, we have two weak colonies to do the gathering, up to about the time the harvest closes, instead of the one very strong one; while after-results from fall flowers are no better for our having increased at this time. Therefore I think it the better way to work all colonies without any increase till very near or just at the close of the harvest, when I go to work and make what increase I wish by dividing as many of the best colonies as I wish increase."

"What do you do with any swarms which may issue?"

"If any happen to swarm near the close of the honey harvest, or at any time during the latter part of the same, I accept their increase as far as they do so, thus lessening the number desired, according to the number which swarm."

"This appears as right to me, and I thank you for the instruction you have given me. But I must go now, as I left my son out holding the horses. Good by."

"Hello, Doolittle! I met a Brown man out here at the gate, and here comes another one; but this Brown is from Ohio."

"Glad to welcome you, Mr. Ohio Brown. Did you come to talk on increase? This

seems to be the theme of late that nearly all wish to know about."

"No, I came to talk with you a little regarding what you wrote in GLEANINGS for Sept. 15, 1902, where you say, on page 756, 'Open the hives and take out some frames to make the bees go into the section.'"

"Very well; what would you like to know further about this matter?"

"I want to ask when is the proper time to put the frames back into the hives?"

"I was there speaking of ways of compelling, as it were, bees to build worker comb, and we took away five of the frames, after the bees had got started to building worker comb nicely in the other five. As soon as the five left are filled down to the bottom-bar, and clear out to the corners, then it is time to fill out the hive with frames filled with foundation; for, if we use frames at this time having only starters in them, we shall most surely get them filled with drone comb. If it is preferred to get all the honey possible in the sections, and feed for winter, if necessary, then these last five frames need not be put in till near the close of the honey harvest."

"I understand now. But another question:"

"Very well; I will do the best I can to help you. What is it?"

"In the Oct. 15th number, same year, you speak of the bees building brace-comb, and give reasons, but none of them describe my trouble."

"Wherein is your trouble different from those I spoke of in that conversation?"

"In one of my hives the bees made some fancy comb honey. After they got a few pounds in the center of the super all nicely capped, they built brace-comb in the center of nearly every pound, bracing the comb to the fences. I should like to know the cause, and a way to prevent it, if there is any way, for they spoil nearly every pound so they are not salable."

"From the way you tell this, I judge that there was only one colony which worked thus. This being the case, and all other things being perfect, I would say that the trouble might lie with that particular variety of bees; for some varieties of bees show characteristics different from others which are distinctly their own. This being the case, I should kill such a queen and introduce one from a strain of bees which show no disposition to build brace-combs thus. That some colonies and varieties do brace heavier than others, I am well aware, and I have superseded several queens just on account of their bees being given to this habit of putting in bits of comb all about the hive, and attached to the combs in a disagreeable manner."

"But suppose that several or all of my colonies should show or give the same results as did this one the past year, then what would you advise?"

"I would advise you to examine carefully the attachments where the comb came in contact with the fences, for it is possible that from some imperfection of the material used in making the fences that the slats, or little fence-boards used, warp slightly, after the combs are built, so that the edges of a few come nearer the honey than when it was sealed over. In which case the bees would either gnaw the sealing off the comb so as to give them room to pass at that point, or else, if comb-building was still going on, put out braces of wax to hold that portion of the fence in place, and steady the comb. I have had one or two complaints that the bees built brace-combs so as to injure section honey, very much more largely where the fences were used than they did with the old-style separator; but I hardly think that such would be the tendency. Will the readers of GLEANINGS tell us what they know in this matter?"

BEES appear to have wintered well; and if they get through the month of April without too much setback, all will be well.

THERE seems to be an abundance of white clover. The frequent and copious rains during March and April have given the plants a good growth.

MARCH AND APRIL.

THE month of April has not been cold but cool. The exceptionally warm weather during the middle of March has had its offset in April. In our locality, the buds on the trees are just about where they were a month ago. Bees have not suffered from spring dwindling, probably for the reason that a large amount of brood was reared and hatched in March. This force of young vigorous life keeps up the strength of the colonies undoubtedly; but for this we would expect the usual spring dwindling.

ALFALFA HONEY; ITS QUALITY, ETC.

MR. M. S. KRAMER, a neighbor of ours, a bee-keeper, sells honey in the great city of Cleveland by house-to-house canvass. He has, this past winter, disposed of a good many tons. He carries it on the electric cars, in fruit-cans, taking as much as he can manage in two baskets. When he sells out he comes back for another load, etc. In answer to the question as to what kind of honey suits most people best, he replied that there was nothing that suited generally like pure white clover; but as he was unable to get enough of this he found the next best thing was alfalfa. I presume others have already learned that the electric cars

furnish a cheap and easy method of transportation at very much less expense than to take a horse and buggy.

MR. JAMES HILBERT AND HIS OPINION OF CUBA.

SOME days ago we had the pleasure of a visit from Mr. James Hilbert, of Bingham, Mich.—A. I. R.'s neighbor at his northern home. Mr. H. has just returned from Cuba, where he has been investing in land and bees. He expressed himself as being very much pleased with the country—its possibilities and development. It is his intention to run his bees up in Northern Michigan during the summer, then during the cold winter months, when his Michigan bees are asleep, he will go to Cuba and work his Cuban bees.

DEATH OF DR. ELISHA GALLUP.

ON the 5th of last April, Dr. Elisha Gallup died at his home in California at the age of 83 years. He was one of the old veterans—the Gamaliel at whose feet Mr. Doolittle sat when he himself was learning his A B C's. Mr. Doolittle has often referred to the doctor, and in recognition of his gratitude to him dedicated his book, "Scientific Queen-rearing," to him. Mr. Gallup was the inventor of the hive and frame bearing his name. He was a prolific writer during the early 60's and 70's, and in later years for the *American Bee Journal*. The period of time included in the last twelve months has taken away more than its share of the veterans—six in all.

CALIFORNIA'S GOOD YEAR AND THE NATIONAL.

THE bee-keepers of California have been getting more rain; and so far as I know the prospects seem to be generally good. It seems to be very opportune that the *very year* when the National goes to Southern California that it should be a good year. If it were to be one of their numerous "off-years" I am afraid there would not be a very large local attendance. But present indications speak for a grand meeting. Remember the date, Aug. 18th to 20th, at Los Angeles.

Later.—There seems to be a move on foot on the part of some of the eastern bee-keepers to go in a party to Los Angeles over the Santa Fe route, stopping just long enough to see the Grand Canyon in Arizona. So far as I know. Editors Hutchinson and York and Mrs. York will go over the Santa Fe route. Dr. Miller and myself will probably go the same way. The plan seems to be to engage a tourist sleeper and get up a party of bee-keepers. Particulars and announcements will be given later.

MASSIE'S METHOD OF INTRODUCING.

IN the review of Mr. Massie's book, in another column, I find I omitted to make mention of his method of introducing queens, which seems to have some merit. In brief it is this: He takes two frames of hatching brood, and puts them in an upper story, the same being set on top of the hive to which the queen is to be introduced, and separated from it by a thin board. The queen is let loose on the hatching bees, and the upper story closed up. A few days after, the old queen in the lower story may be killed or removed, and the bees can be shaken off the frames, which are then put in the upper story. A single sheet of newspaper through which are pricked a few pinholes is then slipped between the upper and lower hives. The bees going in below find themselves queenless and broodless, and immediately set up a cry for a queen. In a few hours they gnaw away the paper and work up into the upper story—a few at a time at first—getting on to their own brood. Here they find a queen laying normally; and, probably having the same scent as the combs, she is immediately accepted. Mr. Massie says the plan is sure.

LATEST FROM THE PEAR-GROWING REGIONS; TRYING TO POISON THE BEES.

SOME time ago Mr. Charles Downing, of Armon, near Hanford, Cal., a man who has one of those mammoth pear-orchards, published a notice that, having suffered serious damage through the visitation of the bees to his orchards, he proposed to adopt as effective means as possible to prevent the destruction of the coming crop; and he warned all bee-keepers to keep their bees out of his orchards. This simply meant that he would put out poisoned sweets to kill off the bees. Information has reached us that the poison was set out in accordance with the notice; but the bees, instead of committing suicide, were visiting the blossoms as before, and no harm was being done.

I saw Mr. Downing myself, when in California, and regarded him as a progressive fruit-man. I think it was he who said that the pear-men were largely to blame because they did not prune their trees, cutting out the blight. I am led to wonder why he does not adopt the effective measure proposed by Prof. Waite, of pruning out all the diseased members of the trees.

REFUSING TO PAY FOR QUEENS.

ON the 13th of last August, Mr. Oakey Hayes, of Little, Taylor Co., W. Va., ordered of Mr. G. Routzahn, of Menallen, Pa., six untested red-clover queens, inclosing an express money order for $3.00; but as Menallen is not an express office Mr. Routzahn returned the order, requesting Mr. Hayes to send him paper that he could use. To this no response was received. Mr. Routzahn finally referred the matter to us after he had written to Mr. Hayes a number of times without getting any reply. We wrote Mr. Hayes, asking for an explanation. After some delay he wrote that the queens he received were unsatisfactory; that three of them were drone-layers, and the other one was dead. Accepting this as

a true statement of fact, why should he not have notified Mr. Routzahn at the end of 30 days, instead of offering, weeks afterward, the complaint that the queens were worthless, and therefore he would not pay for them? The money order was returned almost immediately. *At that time Mr. Hayes had no means of knowing whether they were drone-layers or not;* and the excuse offered for not paying does not seem valid if we are correctly informed of the facts.

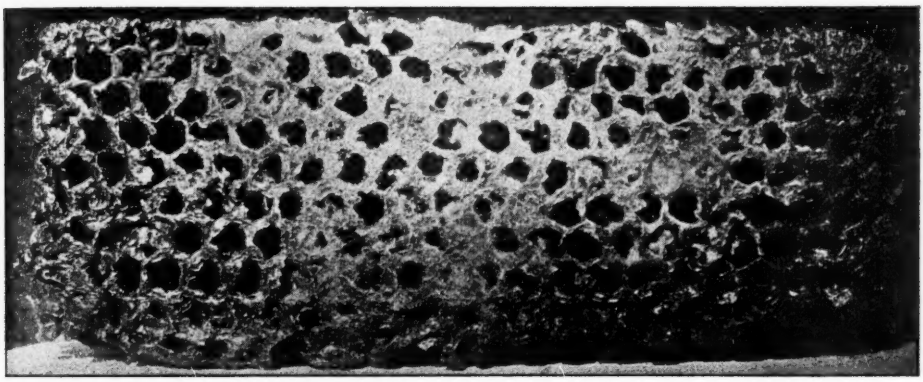
We notified Mr. Hayes about a month ago that we would place the facts of the correspondence before our readers, and that if he had any thing further to offer to let us hear from him; but to this we have had no reply. The rule is, if queens are defective give due notice of the fact within ten days in the case of untested queens, and thirty in the case of tested.

PICKLED BROOD; HOW TO DISTINGUISH IT FROM BLACK AND FOUL BROOD.

SOME time ago Dr. Wm. R. Howard, the expert who diagnosed and named pickled brood and black brood, sent a photo of a fair sample of the first mentioned. We have had the same reproduced in half-tone because we consider it a typical specimen of a comb diseased or affected with the white mold or pickled brood.

In some of the stages, pickled brood much resembles black brood. It is not ropy, like foul brood, nor does it have the characteristic foul odor so much resembling that of the cabinet-maker's glue-pot. Like black brood it is not gluey, and the dead larva turns to yellow, then to a dark brown, and sometimes to a black. The dead matter in black brood is of a jelly-like consistency — only very slightly ropy; that in pickled brood, very watery and thin. In some of the stages I have not been able to detect the difference between black and pickled brood; but when a comb containing dead larvæ is covered with a white mold, then I am very sure it is pickled brood. If a comb thus diseased is placed in a sterilized chamber, in a rather warm temperature, the comb will mold. Indeed, I have had specimens of it mold when confined in an ordinary paper box.

Pickled brood is not to be particularly feared. The disease will linger in a hive for some time. It does not spread from colony to colony, but will occasionally break out from season to season in the same hive. Shaking the bees on frames of foundation will effect a cure. And that leads me to say that, *if you are at all in doubt*, this same treatment is a cure for black and foul brood. Better err on the safe side.



A TYPICAL SPECIMEN OF COMB AFFECTED WITH PICKLED BROOD.

A NEW HIVE WITH CLOSED-END FRAMES.

A BOOKLET entitled "The Queen-bee and the Palace she should Occupy," by T. K. Massie, Tophet, W. Va., is just out. While the book relates to queen-rearing, it seems to be more a description of the hive used and recommended by Mr. Massie—a double-brood-chamber cubical hive, using closed-end frames 7¼ inches deep. In many respects it is similar to the Danzenbaker, which seems to have suggested some features of this. It makes use of plain sections and fences, and tall sections, sealed covers, and a telescoping cap. Closed-end frames are close-fitting, and supported by nails in ordinary hive-rabbets. This style of frame I found in use by J. Y. Tunicliff, in New York, in 1890. I was greatly pleased with it at the time, and started to introduce it. It was illustrated, and still shows in our A B C book, in the late editions. After trying it for a season in several hives I abandoned it for the Hoffman because I found that a close fitting closed-end frame in a deep brood-chamber was liable to cause trouble by swelling, thus making the frames so they could not be removed. A close-fitting frame, however, *might* be made to work provided it were *loose* enough. There should be a play of fully $\frac{3}{16}$ inch.

Such a frame was in use before Mr. Tunicliff tried it—I think by Mr. Quinby himself.

Mr. Massie does not have very much patience with those bee-keepers who stick in the old ruts, clinging to standard hives and to standard goods; and he pays his respects to such people in somewhat emphatic language. The price of the book is 25 cents. It can be obtained of T. K. Massie, as above, or the Kretchmer Mfg. Co., Red Oak, Iowa.

THE POLICY OF GLEANINGS TOWARD CO-OPERATION DEFINED.

I AM surprised to notice that I am credited by one of the editorial writers in the *Progressive Bee-keeper* with being opposed to co-operation. Possibly such an idea may be gathered from a single quotation, if it is taken separate and apart from all the other things I have said on this subject; but is that a fair way to set forth one's opinion or position?

I have been heartily in favor of co-operation, and have referred editorially a number of times to the splendid organization in Colorado. In this issue it is with no little satisfaction that I note that California is in a fair way to have a successful State organization for the marketing of its crops of honey. A few wild and visionary schemes have been proposed; and from a business point of view, if an attempt were made to carry them into effect, failure only could be met, with the result that the general idea of co-operation would receive a blow from which it would not soon recover.

For fear that some may not understand our position, I wish to say this: That we are heartliy in favor of co-operation, and will do all we can to further and help on *any plan that is business-like and practicable in its general scope*. But the talk about a national co-operative body to sell honey would be a little premature, just now, according to my way of thinking. When we can get four or five State organizations at work effectively, we shall then stand a better chance of launching forth an exchange that will be national in character. Let us go slow; but be sure that what we do undertake would make a sure go.

GLEANINGS opposed to organization? I know of no reason why it should be. What is helpful to the bee-keepers at large would be immensely beneficial to the publishers and manufacturers. Certainly the present ruinous price-cutting and lack of co-operation is damaging and demoralizing to every interest connected with the bee-keeping industry.

THE REVIEW EDITOR AT MEDINA; A VISIT WITH MR. CHALON FOWLS, OF OBERLIN; HOW TO MAKE RED BEES OUT OF YELLOW ONES; THAT HORSE THAT WAS SO BADLY STUNG.

MR. W. Z. HUTCHINSON, of the *Review*, is foul-brood inspector for Michigan. Happening to be in the southeast corner of that State on one of his inspection-tours he decided to go a little further and visit some of the bee-keepers in Northern Ohio. We had the pleasure of a visit from him on the 23d and 24th of April. Although he is a little past 50, yet he is well preserved for his age. Tall, straight as an arrow, he does not look to be over 40. Those of our people who had never seen him remarked that they would have known him at once by his photograph.

Of course, I took W. Z. out on my auto. A number of times I ran the machine up to the point where I thought I could make him flinch. When I asked him if he could stand it at a little higher speed, he laughingly remarked that he could stand it if *I* could. Well, to be frank about it I did not dare to go much above 15 miles an hour on those country roads. As it was, we were jounced or "shook" like beans in a box. What if I should lose my grip or head, or run into something? What if I could not stop the thing? What if I should run into a ditch, and the thousand-pound automobile should be piled up on us two editors? We solemnly agreed that *that* wouldn't be desirable or comfortable, and I slowed down.

I proposed taking our friend to Oberlin and Norwalk in the machine to see Mr. Fowls at the former place and Mr. Boardman at the latter; but the condition of our Ohio roads, and the general appearance of the sky, made it seem inadvisable. To prolong our "unconventional convention" I finally decided to go with W. Z. H. on the street-car, at least part way. I went as far as Oberlin, where Mr. Fowls helped make up our convention. It will be remembered that he is the extracted-honey man who makes a specialty of bottling his honey, and selling the same at retail. He has now four outyards, and is one of the few who make bee-keeping a specialty. He remarked, as he looked toward W. Z. with a twinkle, that he was going to keep "more bees;" and instead of producing extracted honey only, and carrying some of it over from season to season, he proposed dividing his crop into fancy comb and fancy bottled goods.

Our readers will recall that, some three or four years ago, Mr. Fowls had quite an experience with a horse that was nearly stung to death, and that he himself escaped very narrowly. He had tied the "old mare," as he said, back of the yard near the fence. On the other side of this fence there was a couple of nuclei which he had forgotten all about. During the night the horse in some way broke through the fence and upset one of the hives. In the early morning Mr. Fowls heard a peculiar racket. Suspecting what the trouble was, he dressed and rushed out to the horse, barefooted and bareheaded. My, oh my! how the bees pitched at him! He returned, however, in inglorious defeat. Remembering that that seemed cowardly, and that the poor horse was tied with a rope, he rushed back, this time in spite of the bees and stings, and untied the rope. But the mischief had been done. Almost screaming with pain he called for hot water, which

was applied to his face and hands, to his great relief. In the mean time the horse had run from the yard, and was raring and throwing itself in fearful agony. The neighbors rushed to her assistance. Doctors were called. Some advised cold water, and some called for water with soda. But Mr. Fowls insisted on cloths wrung out of *boiling* water. The horse was held down at her head while the cloths were applied. He had some fears, he said, that the cloths *might* cook the skin, but they did not. The time required in wringing and swinging them in the open air probably reduced the temperature so that they would not do that. Hot cloths were applied all over the animal except the head. He never thought of applying them there also; because, in order to hold the animal down on the ground, it was necessary for some one to sit on the head. Now mark this: The *only places* that swelled at all on the horse were on the head, where the hot cloths had *not* been applied. The eyes of the poor beast were swollen shut. The lips were so badly swollen that the mouth looked like that of a rhinoceros. The ears were fearfully puffed up. So badly swollen was the nose, that *actually*, Mrs. Fowls said, the poor animal could not get her mouth in a common water-pail. I remarked that I should have liked to be there to take a photo of her at the time. Although her appearance was laughable in the extreme, Mr. Fowls said he did not think he would be *mean* enough to let me snap the instrument on her and show her to our readers, even if *I* could have the heart to do it.

Mr. Hutchinson and I looked at the horse, and the only marks that could be seen at this time on her were some bare spots on her flanks and legs. But she is afraid of bees, and always will be; and for some time afterward Mr. Fowls said it was difficult to get her near the yard where she had been so fearfully stung. She remembers it yet when she hears the hum of bees around her ears.

A JOKE ON MR. FOWLS; RED BEES; A HINT TO EXHIBITORS.

Mr. Fowls related one incident that was somewhat amusing. In visiting one of his outyards he found one hive where the bees were red instead of yellow. They were beautiful to look upon. He caged a few, and was going to send them to one of the aforesaid editors, when, lo, the next morning the bands had turned back to their original yellow. He was nonplused. A few days after, he went back to the yard and found more red bees. Finally his thirteen or fourteen year-old boy said, "Why, pa, they are red because they have been eating red candy syrup." His father protested that that was impossible. "Here is a row," said the boy, pointing, "to which you fed red candy syrup, and here is a row where you didn't." Examination showed, sure enough, that the red-candy row showed red bees and red combs, while the other row showed bees of normal color.

It seems Mr. Fowls had had an opportunity to buy some candy from a candy-maker at a low price. It was made of granulated syrup, and he decided to use it. I think it was red peppermint. At all events, it was this red stuff that gave the candy or syrup its color. When the bees were filled with this red stuff, their bands on the abdomen, instead of showing yellow, the color of the fluids in their bodies, would show pink or red.

Here is a valuable trick for exhibitors at fairs and expositions. They can color these bands from green to red so long as the coloring element is not poisonous. All one would have to do would be to feed his bees a colored syrup, using, in the case of red or purple, aniline. A very little of it would give a rich color like ink. Now arrange to put the bees on a window, or so the light would shine through them after they have been fed. I imagine it would be quite a drawing card, especially if one could get a blue and a green. Ordinary bluing would answer for the blue, aniline for the red or purple; and green—well, I am not enough of a chemist to suggest. Certainly Paris green could not be used.

Now to return to our unconventional convention. We talked over tall sections. Mr. Fowls' verdict was that Ideal sections were not ideal; but he was favorably impressed by the 4×5.

As for shaking swarms, he had practiced it for years, but never supposed it could be applied to the whole yard to advantage. He expects, this coming summer, to shake all the bees at his outyards, as this would obviate the necessity of having an attendant to look after them. He desired to move one yard a few feet; and he wondered if the shaking would not enable him to make the shift. Mr. Hutchinson thought it would. If he tries the experiment I hope he will let the bee-keeping world know about it.

I did not go on to Mr. Boardman's with Mr. Hutchinson, concluding I would see our friend at a later time when the roads permit me to go with the automobile. By the way, A. I. R. expects to go with me on my first auto trip. He appears to enjoy the fun of this horseless kind of riding as much as your humble servant, and that is saying a good deal. Oh the roads! They are horrible now—deep ruts and great hubs, with occasionally here and there a shallow mud-hole.

And that reminds me that I have been stuck in the mud twice, and had to go through the humiliating experience of getting an old farm-horse to help pull me out. Not being familiar with the handling of the machine I backed too far down into the ditch into some soft mud. The traction-wheels were in the mud, and, of course, when I applied the power they simply slipped around and around, and the machine was powerless to extricate itself. I am a little more careful how I back, especially when I can not see where I am going.

REPORT OF NORTHERN MICHIGAN BEE-KEEPERS' CONVENTION.

Held at Bellaire, Mich., March 25 and 26.

BY A. I. ROOT.

I returned from Cuba just as our issue for March 15 was getting ready for press; and just as the form was being made ready, my eye caught sight of the convention notice on page 265. Well, Mrs. Root and I hurried up our arrangements for our Michigan trip so as to take in this convention; and I am glad to tell you it was not only one of *my* happy surprises, but one of *our* happy surprises, for I think Mrs. Root enjoyed it as much as I did. Bellaire is situated on the Pere Marquette railway, and the surroundings are very much like ours at Bingham. It is also located on a string of little lakes that are connected together so that an excursion steamer runs regularly back and forth down them during all the summer months. I do not know how many miles this excursion steamer embraces; but I think it must be toward 100; and all the way along there are little lakes connected by narrow channels. In consequence, there is any amount of water power from the "babbling brooks" that come tumbling down the great hills. Bellaire is not only well lighted by electricity generated by water power, but there are several large manufactories where they make clothes-pins, wooden bowls, and a great variety of woodenware. The price at which these household commodities are sold is simply astonishing. Why, they told us of a woman who was buying clothes-pins by the gross for kindling-wood. She said it was not only the *best* but the *cheapest* kindling that she could get hold of as she was situated.

The attendance at the convention was not large; but what was lacking in numbers was made up in quality. My good friend Hilton was president as usual; and with W. Z. H., of the *Review*, right at his elbow, taking down notes, they not only made a good-looking span, but a very efficient team in running a convention successfully. W. Z. H. will probably give a complete report through the *Review*, and so I will simply go over briefly the subjects discussed.

Friend Berg, the plum-man I wrote up last fall, was on hand, and he was just as good-natured and full of fun as ever—perhaps a little more so. I rather think his big crop of fruit and honey, especially the plums, helped to make him good-natured. He said there was a woman in his locality who was getting double the amount of honey he secured, by throwing it out before the bees had time to cap it over. In fact, he said some of her honey was but little more than sweetened water. But she got double the number of gallons because the water had not yet evaporated out of it. She was selling water by the pound at the price of honey. When I arose and asked how it was that it did not sour on her hands or on the hands of her customers, he replied, "Oh! this woman is sharp. She is sharper and brighter than we men-folks, in a great many ways. She sells all her honey to a confectioner in Traverse City, and he boils it all up into candy before it has had time to sour. He does a thriving business in making honey candy, and she does a thriving business in giving him fresh honey right from the hives every morning."

Of course, there was a big laugh at this. But, dear friends, here is a very valuable point. W. S. Hart, of Hawks Park, Fla., and some bee-keepers in California, have made machines to evaporate this raw thin honey; but I believe they have been mostly dropped. Now, the confectioners and candy-makers, men of our large cities, have all the "rigging" to take this raw honey and make it into honey-cakes or honey-candy. I did not learn the lady's name who started this new industry; but is it not possible that we bee-keepers may in time decide we owe her a vote of thanks?

PREVENTION OF SWARMING.

This whole subject was discussed as usual; but I got a new idea, or one that is new to me. We all agree that, by the use of the extractor, swarming can be discouraged much better than where we work for comb honey. If you give the bees plenty of room to store as near the brood-nest as possible, or, better still, right in the heart of the brood-nest, you will discourage swarming. Well, now, instead of using the extractor in throwing the honey out of the combs in the brood-nest, suppose we have half-depth stories and half-depth frames. In this way we can get a case of sections, either empty (or, where the bees have partly drawn out and filled the combs), not only close to the brood-nest, but we can get it right *in* the brood-nest. Our friend Bingham, and others who advocate these very shallow frames, perhaps can tell us more about this. Mr. Fred Somerford, of Cuba, produced a very fine crop of comb honey which was secured on half-depth frames, if I am correct. In fact, he had so large a crop he himself went with it to New York to make a sale.

The locality of Northern Michigan was discussed a good deal. The wild raspberry, that springs up all over wild land where the timber has just been cut off, is one of the best sources, not only in quantity but also in quality. A bee-keeper present said a neighbor of his, Mr. James Martin, of Alden, Mich., had, during the past season, increased from 7 to 50, and secured 1500 lbs. of honey; and the stunning part of it is, he is a beginner, but, of course, an enthusiast. I am not quite sure they said he got hold of the A B C book, but I think it *must* have been that way, and then he gave his whole time and attention to it, figuratively speaking, and made a success the "first pop" that outstrips all

the veterans. It is a little humiliating to think how many times this has happened before. Now, if I have not got this right, will James Martin please stand up and tell us the truth in the matter?

Mr. Chapman recommended a plan for requeening in the fall after the honey-gathering is mostly over (so that a few days more or less without a queen would not be of much account), by having a lot of queens cells almost ready to hatch; then remove the undesirable queens and give the colony a cell in a queen-cell protector. Friend Hutchinson suggested right here another point in favor of requeening in the fall; young queens can be purchased at a lower figure at such a time than at any other in the season.

WHAT TO DO WITH DARK HONEY FROM THE SOLAR EXTRACTOR.

I mentioned, while in Cuba, that the honey from cappings, where it is rendered by the solar wax-extractor, was too dark to be marketable at a good price. Friend H. K. Beecham, of Williamsburg, said he made vinegar of this kind of honey; and, in fact, he used all the sweets or sweet water, accumulating in the apiary, for the production of vinegar. He said he had six barrels of nice vinegar on hand at that time.

Somebody suggested that you could get the honey that clings to the cappings off in good shape by putting them in a pan and setting them in the oven. The oven would warm it up so gradually that the wax could be melted without even injuring the color of the honey. Some of the women present inquired what compensation the women ought to have for having a man around the cook-stove with the honey and wax on his boots, etc. I think it must have been Bro. Berg who suggested the cappings should be turned over to the women, and let them manage it and the oven. If I remember correctly, there were some murmurs among the ladies present at giving them so much extra work, when perhaps their household duties took all the time. Bro. Berg suggested that they have all the honey that comes from the cappings as compensation. Now, perhaps it was my imagination, instead of one of the women, that asked if they could not have the *wax* also. Somebody suggested that the greater part of the honey could be squeezed out of the cappings by taking a double handful and squeezing them into hard tight balls, thus making the honey ooze out. Well, one of these same women (they did not talk out loud very much, but they kept whispering to each other) wanted to know whether the bee-keeper took the trouble to *wash his hands* before he squeezed out this extra-fine honey from the cappings.

While I am speaking of the bee-keepers' wives and daughters present, perhaps I might mention that every one seemed to be exceedingly pleased to see Mrs. Root, for almost the first time, attending a convention in company with your humble servant. In fact, somebody, I do not know who, brought an easy rocking-chair in the afternoon for her to sit in. She sat in it a little while, and then made the other women take it by turns; and, by the way, is not that an excellent idea, bringing one or more easy seats for the ladies, especially the elderly ones? We men-folks do not get tired of talking about bees and honey from eight o'clock till dinner-time; and, to tell the truth, a great many times the president often has hard work to get the meeting adjourned when dinner is ready. Well, it would not be at all strange if the wives and daughters should get a little weary, and an easy-chair or two might induce them to come oftener. In fact, Mrs. Root has talked so much about meeting the bee-keepers and their families, she has at least *partly* promised me to go with me next time when I invite her.

PREVENTION OF ROBBING DURING EXTRACTING TIME.

When I made my last visit to the Paso Real apiary, in Cuba, they had been extracting; but the bees got to robbing so badly the men actually had to stop work. In fact, it was about the worst case of robbing I ever saw—that is, that kind of robbing. In the first place, our apiary of 500 colonies, where the ground was as clean as a brickyard, and no shade, was a bad arrangement, at least when the sun got to be pretty warm, as it was in February. Secondly, our people there had a fashion of taking out a wheelbarrow-load of empty combs and putting them back over the hives as soon as the honey was romoved. At the convention at Bellaire the matter was alluded to, and I think it was Mr. Beecham who suggested that combs right from the extractor should not be put back on the hives until dusk, or after dark. Why, at Paso Real I have seen, I might almost say, bushels of bees, instead of saying *a* bushel, piled all over the two-story hive where a set of combs had just been put on the upper story right from the extractor. They covered the whole hive, entrance and all; and not only that hive, but the adjoining hives. Sentinels and every thing of that sort were "snowed under" by piles of robbers. Of course, hundreds of bees were stung. A tent might be used to cover one hive, but the robbers poured on to the adjoining hives. My neighbor Hilbert suggests that the reason of this is that ten empty combs dripping with honey right from the extractor, placed over the strongest colony in a yard, will have a tendency to draw every bee in the hive (sentinels and all) right into the upper story to look after these combs; and during the time while the bees are licking up this honey, robbers can, as a rule, march right in. After learning the trick—that is, when the honey-yield begins to slacken, bushels of robbers will follow along where extracting is being done. I told them, when I saw the state of affairs, to shut right down and stop; but the boys said they wanted enough honey to fill some barrels to be shipped

right away; that the hives were full of honey, and they did not have any work on hand but to take it out. Where we have it I would suggest putting back these empty combs by the light of the moon. If you think it can not be done I will go and show you how. Another thing, a full set of dripping combs put over any hive, even while the bees are busy gathering honey, stops work in that colony for pretty nearly all the day. If you put back the empty combs at night, the colony will be ready to go out and do a good day's work next morning.

I should be glad to mention the names of all the dear friends who were present and took part in that excellent convention of bee-keepers, but space will not permit.

THE NEW CALIFORNIA NATIONAL HONEY-PRODUCERS' ASSOCIATION.

A Statement from President Brodbeck.

BY G. W. BRODBECK.

Permit me to present to you some of the outlines of our organization as inclosed. We are meeting with much encouragement; and as the prospects for the season seem to brighten, increased interest is also developing in the project at hand to help the bee-keepers. The majority of the bee-keepers in this State are poor men, consequently the only hope they have of bettering their condition is by a co-operative movement in conjunction with the large producers. Our object is not to secure high prices for our product, as some seem to charge, but we do claim that the present cost of production makes it imperative that we demand better compensation for our labor than we have secured in the past; and unless we do succeed in attaining this, the result will be that the small producers will drop out entirely, and the production of California honey will be confined entirely to the large producer and specialist.

The leaders of this movement are all capable of disposing of their own product, consequently you will recognize the fact that our efforts are not entirely selfish.

GEO. W. BRODBECK, PRES. LOS ANGELES. GEO. L. EMERSON, SEC. SANTA ANA.

532 Laughlin Building.

CALIFORNIA NATIONAL HONEY-PRODUCERS' ASSOCIATION.

LOS ANGELES, CALIFORNIA.

Incorporated under the laws of California, Dec. 26, 1902. Capital stock $25 000, divided into 500,000 shares, par value 5 cents. Principal place of business, Los Angeles, California.

Directory for 1903: L. E. Mercer, Ventura; Geo. W. Brodbeck, Los Angeles; M. H. Mendelson, Ventura; L. S Emerson, Santa Ana; Geo. L. Emerson, Santa Ana.

Officers: Geo. W. Brodbeck, President, Los Angeles; M. H. Mendelson, Vice-president, Ventura; L. S. Emerson, Treasurer, Santa Ana; Geo. L. Emerson, Secretary, Santa Ana.

That co-operation on the part of the bee-keepers of California is the only possible means of solving the present unsatisfactory methods of marketing our product is seemingly evident to all. Other industries in this State have passed through all of the varied stages of a hopeless struggle that we have; but, fortunately and wisely, they united their interests, laying aside individual competition, and thus accomplished by co-operation what they had failed to do as individuals.

The object and aim of this organization is to follow none but tried and proven methods; but all these can not avail unless the bee-keepers fall in line and support this effort to help them. With the object of enlisting their support we offer this as a prospectus of the aims and intentions of this association.

We propose organizing local associations wherever bee-keepers can concentrate their product. This concentration of large quantities of honey and wax increases their value in many ways, and lessens the expense of grading and handling.

By combining and buying in large quantities we reduce the cost of supplies, and secure carload rates upon them.

Uniform grades of honey will be established, extracted being graded as white, light amber, amber.

A storage warehouse will be established at Los Angeles and wherever local associations are organized. Storage rates and insurance will thus be reduced

The association will be enabled to obtain better rates of interest for money advanced on honey than individuals, thus decreasing the cost of holding honey.

The membership requirement of one share of stock for every colony of bees confines the management to bee-keepers only.

The price of stock being small excludes no one, and also limits the possibility of speculation.

The limited capital compels the management to do all business on a cash basis, consequently all orders must be accompanied by cash.

Retailing and supplying home markets is commended and encouraged.

A commission will be charged for selling in car lots. All honey sold by the individual in less than car lots pays no commission. All honey sold by individuals must be at a price not less than that fixed by the management at the time of sale. All sales of car lots, made by individuals, pays a commission of one per cent.

All honey graded, sealed, and stored will be charged the actual expense of doing the same.

One of the greatest advantages to be obtained is that of preventing adulteration by a sealing device which we intend to attach to every can of our honey. When people find that they can secure an absolutely pure honey by buying that which bears our seal intact, they will insist on having our brand. This will raise the price of our honey to such an extent that adulterators can not afford to use it.

Another strong feature is our information bureau. By getting accurate crop reports and conditions governing the future crop, we can keep our members thoroughly posted as to the quantity of honey produced, or that in all probability will be produced, and thus we shall be in a better position to know what the price should be

We wish to call your attention to the fact that every thing is offered to the members as a privilege that they can secure if they wish, and they are not under any obligation to deal with the association unless they choose. Thus the association offers to its membership all the advantages it is able to secure at actual cost, and asks in return that the members pay simply for what they get, and stand their proportionate amount of expenses (as they share in all profits). This, and a promise to not sell for less than the association prices, is, we think, not too much to ask of any man for what we can do in return.

We will gladly furnish any further information upon request.

The great opportunities which this Association has for the improvement of the bee industry, and the well-known reputation of the Directors as honest and successful business men, serve as a guarantee that every stockholder will receive prompt and lasting benefit from this organization.

GEO. L. EMERSON, Sec.

[The California Association has made a good healthy start, and it rests with the California bee-keepers to take hold. Factionalism should be unknown. Any other organization that has failed to materialize should disband and help along the one that has got as good a start as this. Mr. Brodbeck, and all the Board of Directors above named, are men of high character and business standing, and the new organization ought to meet with favor.—ED.]

COMB-HONEY PRODUCTION.

How to Obtain the Best Results, Both as to Quantity and Quality; the Art of Making all the Sections in a Super "Fancy;" the Relative Proportion of Comb to Extracted Honey.

BY OREL L. HERSHISER.

[Those who attended the Pan-American exposition will remember some beautiful comb honey which Mr. Hershiser produced on the grounds. It was well filled out—remarkably so—and beautiful to look at. Mr. Hershiser explained that he did not follow the orthodox method of tiering up; that is to say, he reversed the method. Some time ago I requested him to tell us about the plan in detail—a plan whereby he could make nearly every section in a super "Fancy." This he promised to do by saying he would send the articles in time to make them seasonable. This is the first one of the series.—ED.]

The theme "Comb-honey Production" is one that has always been popular with writers on apicultural topics; and as long as further treatment of the subject promises to be profitable it will not become worn threadbare. Whatever of better classification of known facts, in addition to newly discovered methods, the application of which will make apiculture more remunerative as an avocation and a better paying business as a vocation, is of vital importance to the bee-keeper.

Frequently nature, in her lavishness of the necessary conditions, will enable the unscientific and unprogressive bee-keeper, who does almost nothing to direct the efforts of his bees, to produce comb honey that would pass as "fancy," and to that class of honey-producers it may be said that the adoption of modern hives and appliances, together with a well-formulated system of management, based upon known facts, to the end that the maximum usefulness of the entire colony, during the honey-flow, is obtained, will more than double his average of comb honey, and will more than pay him for the necessary outlay in hives and appliances in one average season of nectar secretion. The thoughtful and scientific apiculturist has the greater interest in the system and methods which will yield him the greater net profits, not only in seasons that are unusually bountiful to all honey-producers, but those when but average or adverse conditions prevail.

It has come to be generally believed that a given number of colonies will produce from 50 to 100 per cent more extracted than of comb honey, that of the latter being greater if the honey-flow is abundant and less if it is poor. It is explained that the greater quantity of extracted honey is produced because of the repeated use of extracting-combs, and the resultant saving of the labor of the bees in comb-building and the necessary consumption of honey to produce the wax therefor. A further reason for this disparagement in the production of honey in the two forms, under the orthodox systems of management, is very evident. The extracted-honey producer usually provides a super or additional body, with drawn combs, furnishing storage room for surplus honey, and preventing the crowding of the queen, by making it necessary for the workers to use the cells from which young bees have just emerged, for that purpose instead of continuing their use for brood-rearing. These store combs, being provided as needed, there is no interruption of the work of the bees, and consequent loss of honey, but, on the contrary, conditions favoring the rapid increase in the number of worker bees, which is very important in localities where there is to be expected late summer or fall flows of honey. When the capacity of the hive is restricted to one brood-body till time to put on the super for comb honey, at which time, by ordinary systems of management, there is not yet sufficient bees in the colony to occupy and work in it, they are said to be slow in commencing work in the supers. But, really, is it any wonder that they will not immediately expand their cluster so as to occupy an additional space, which is more than half the capacity of the brood-chamber? One other reason for the unequal proportion in the quantity of honey produced in the two forms may be mentioned in passing. Some apiarists, in their zeal to obtain a large crop of honey, extract before the bees have sealed it. Such honey is nearly always unripe, and likely to ferment, and is of much less value than it would have been if allowed to remain on the hive till mature. This practice is, therefore, emphatically condemned.

Speaking from personal experience, the hive best adapted to comb-honey production is one that can be built up or storified: one that has a comparatively shallow brood-chamber, somewhat shallower than the Langstroth hive. The comb surface of the brood-body should not be greater than the equivalent of eight Langstroth frames. The space on the upper surface of the brood-body should be sufficient to accommodate a super containing 32 one-pound sections. In the opinion of the writer, for his locality at least, the ten frame Langstroth hive contains too much space in the brood-chamber to obtain the best results, except it be contracted by dummies, and in comb-honey production the use of the latter brings a portion of the sections over the dummies, and too far removed from the heat of the hive to obtain their perfect construction. On the other hand, the eight-frame Langstroth hive does not contain sufficient super surface to meet the requirements of high-pressure bee-keeping. And Langstroth frames generally have one or two inches of nice white honey along the under side of the top-bar, at the end of the white-honey season, which, if it could be placed in the sections, would greatly enhance the profits of the apiarist. Such shallow hive should consist of two brood-bodies, which may be used interchangeably, making what is sometimes called a divisible brood-chamber, and two supers (three would be better), which may be used interchangeably with each other or with the brood-bodies.

With such a hive the building-up of the

colony in the spring is easily accomplished by adding a second brood-body, supplied with worker brood-combs, as an upper story to the body in which the colony has wintered, as soon in the spring as it is found to be full of bees, and when the weather conditions are favorable and settled. If the brood-combs in the added body contain some honey it will speedily disappear as food for the rearing of bees; but if the colony is otherwise well provided with honey, no stimulative feeding is necessary. A colony that has wintered well, if treated in this manner, will attain to sufficient strength, and contain an abundance of bees of the right age for the white-clover harvest when it is ready, without feeding, except to provide the necessary food to keep brood-rearing in progress without interruption. No queen-excluder being used, the bees will readily go up and occupy this added section of the brood-chamber, and in a comparatively short time the double hive will be literally full of bees and brood from top to bottom, except the comb-space occupied by the reserve supply of honey for food, of which there should be at least a few pounds, even at the time for commencement of the honey-flow, to provide against periods of unfavorable weather or a failure of the flowers to secrete nectar. This reserve supply of food is very important, and it should never be allowed to become exhausted. On rare occasions, when there is an entire failure of the flowers, from which a crop of honey is expected, to secrete nectar, the life of the colony depends on it. Happily, seasons of entire failure from all sources are rare.

If the bees have wintered satisfactorily, and have met with no unusual setback during the spring, they will have multiplied, prior to the commencement of the white-clover honey-flow, far beyond that which would have been possible in the ordinary hive with single-story brood-chamber. We now have a hive of bees bred up to great strength. "The laborers are many; and if the harvest truly is plenteous," with the proper management of the colony, in its preparation and maintenance for comb-honey production, if the season is at all favorable, we shall reap an abundance. If, on the other hand, the season is unfavorable, we are in position to obtain all that it is possible for a colony, in the best possible condition, to glean.

Continued.

AIKIN'S CANDIED HONEY.

The Name Bologna Sausage Objected to; Candied Honey well Received at Roseville; Granulated Alfalfa well Liked.

BY MRS. L. C. AXTELL.

I have just finished reading Mr. Aikin's article on candied honey, and your and Dr. Miller's reply, and I must say I am greatly pleased. I was pleased that you could indorse what Mr. Aiken has said, for we must have a convenient style to sell our candied honey in or we can not sell it at all except in a small way. But let us start it out with a better name than "bologna sausage" honey. That name will imply to many minds something made up—a manufactured honey, just as if we would call oleomargarine "oleo butter;" and our greatest drawback in selling honey is the prejudice against manufactured honey—that is, honey out of the comb.

Even in this neighborhood, where we have been dealing in honey for nearly a generation, they don't learn to look upon honey that is out of the comb without some suspicions that it is manufactured. If we call it extracted, they or some people want to know what extract is used. Only a few days ago an old grocer, and a good man too, who has handled comb honey for us for 15 years or more, remarked he liked bees' honey better than that stuff, when we were showing him some beautiful white candied alfalfa honey from Utah.

I find that, by simply calling it, when describing it, "honey out of the comb," they understand it better than extracted. They even understand better when we call it "strained honey" than extracted. I am pleased that some one has marked out a plan that is more satisfactory for handling honey than by putting it in glass jars. Last winter we bought some paper oyster-boxes, and put some of the honey we had for sale into them; but they were not labeled on the outside; and they being bought at a market here cost much more than paper bags would, and late in spring they got so sticky that in emptying them they had to be scraped out as if lard had been in them. I think our eastern honey would melt so that it could not be peeled off when warm weather approaches.

We bought several cans of alfalfa honey from Utah, shipped in by Editor York, all of which was granulated; but some cans were harder than others. One can especially was exceedingly hard. None of it gets hard like crystallized sugar, but more like frozen butter.

We like to have it warmed a little, and stirred up just enough so we can spread it upon bread. Some of our neighbors said they liked it candied because it was so nice to spread upon the children's bread to carry to school.

Our own honey crop of 1902 was only about 10 lbs. of comb honey and about 10 of extracted, from about 48 colonies. The extracted did not candy—the first we ever took that remained liquid that I remember. I guess the reason was, most of it was not sealed over, and if it had been left a short time longer on the hives it would have been carried down into the brood-nest.

Some did not like the alfalfa honey, and wanted something stronger; so by melting some of the alfalfa, and mixing with ours about one-third alfalfa it granulated soon and gave better satisfaction than if it had been all of our own.

Mr. Axtell and I are exceedingly fond of the granulated alfalfa, and never ate so much honey in our lives as since we bought granulated alfalfa honey. We had one can. We bought it in the winter. We had not sold out, and in the fall we opened it and found it still granulated hard. After being kept all summer in our honey-house I could not see but it was just as nice as when we bought it in the fall.

We took a can of the honey to a grocer to sell; but as it comes out so hard, and after standing for a time looks so dauby, it does not sell readily. I am sure it needs to be weighed out in convenient packages for them to handle.

Candied honey sells with us more readily than the liquid honey, and no one objects to paying 15 cts. for it when comb honey brings 20, or 12½ cts. when comb is 15.

I am satisfied one could sell a great quantity if weighed out into small and large packages, and would take it regularly over the country and through villages, not trying to sell too much at a time, as too large an amount gets dauby before they use it up. We offer it by the $1.00 worth first; and if they hesitate to take so much, then offer less, but keep it at same price so that poor people can have the same chance that their more wealthy neighbors have of eating honey.

Roseville, Ill., Mar. 9.

[The word "bologna sausage" was introduced only as a pleasantry. It would be unfortunate to have the word attached to this unique package of honey, and, so far as the columns of GLEANINGS are concerned, we will see that the designation is suppressed—not because it is vulgar or unclean, but because honey is supposed to be a very different article from that which bears the name "bologna."—ED.]

Our May Symposium.

FULL SHEETS VS. STARTERS IN THE BROOD-NEST.

How and Why Starters Can be Used to Advantage; Conditions under which Bees will Build Drone and Worker Comb; Feeding Outdoors; Can it be Practiced Safely?

BY M. A. GILL.

Mr. W. K. Morrison's strong stand against starters in place of full sheets of foundation or drawn combs for the brood-nest plainly shows again that different localities need different methods, as none of us would dare to criticise Mr. Morrison's judgment in the different fields where he has practiced. But after using starters only for years I can not but think that their use is the proper thing here in Colorado, when working for comb honey exclusively. It is a fact patent to all, I think, that a colony that is building a set of combs in the brood-nest, and that has at the same time ample storage room in the super, has all desire to swarm removed, and the necessity for rapid comb-building for storage purposes removed, and that the desire for workers in such a colony is paramount. Hence nearly all the comb that is built by the bees, and immediately occupied by the queen, is built worker size, whether the queen be one month old or three years old.

But to secure these conditions, everything must be normal. The colony must have a laying queen and an ample field force at the time they are hived, whether the swarm is forced or natural. Again, it is necessary to have a steady flow of honey; but these conditions nearly always prevail at such times in Colorado.

Any condition that will retard rapid comb-building like an old queen with a good force of young bees and a small field force, or a colony that has been given a frame or two of brood to help them, and has a small field force, or a colony, let it be large or small, that is compelled to raise a queen, will invariably construct much drone comb.

But I think it is still safe and advisable, here in Colorado, where our swarming season does not stammer along through the year as in oriental countries, but is nearly all done in twenty days after the honey-flow begins, to continue the use of starters only in the brood-nest; and our reward will be a good crop of the most beautiful surplus honey that can be raised, and brood-chambers filled, with none too much drone comb, as hundreds of my own and others' hives will attest.

In your April 1st issue you say to a correspondent that it is not safe to feed good heavy syrup to bees in the open air. I wish to relate a little experience I had with open-air feeding last fall. I had sixty forced swarms that I moved to a comparatively isolated location, and on examination, about Sept. 20, I found them short of stores. As you know, my covers will hold liquid like a tin pan. I inverted them on the hives, and used them as feeders, first filling them with excelsior, then pouring the syrup right into the excelsior. I made the syrup by taking 75 lbs. of water to 100 lbs. of sugar, and letting it just come to a boil. This would, perhaps, leave about 165 lbs. of syrup to 100 lbs. of sugar used. I fed them this amount at a feed by pouring, say, 8 lbs. each in 20 covers scattered about the apiary. The feeding was done from 2 P. M. to 3, and all entrances were left full size.

I continued this three times each week, until I had fed this apiary about 1600 lbs. of syrup, realizing that much would be consumed in brood-rearing on account of the continued feeding. When I quilted them for winter, Nov. 1, I found them in prime condition; and on April 1, 1903, I found them still in prime condition, and all alive, 59 of them with queens laying. The feed cost about 75 cts. per colony. I fed all together to my bees over forty 100-lb. sacks

of sugar made into syrup; but in all other apiaries I was compelled to feed inside the hives on account of neighbors' bees.

Of course, in the apiary first mentioned, some colonies got more than others, as is the case in any honey-flow; but all got some, and enough, while some that needed it were skipped by the plan of individual feeding; hence the best results were obtained by the open-air plan. Is there anything more successful than success? People living where it is rainy, cool, and cloudy during October, must not confound these conditions with ours here in Colorado, where it is sunny and dry and hot during the day time, so that sugar syrup can be ripened and sealed up like natural stores, even in October.

Longmont, Col., April 11.

[It is true that the matter of locality has a great bearing on this question of starters versus full sheets for the brood-nest. Bees are much more inclined to swarm during a light honey-flow that continues on from day to day than when the nectar comes down with a rush. If what you say is true, I should suppose that in Texas, at the beginning of a honey-flow, or just prior to the heavy part of it, the bees would build store-combs; but after the season really begins, then they would build worker. In a warm climate, where the honey-flow is moderate, just enough to incite swarming, and the season prolonged, it might be advisable to use full sheets.

I should be glad to hear from others on this question on which there seems to be so much variance of opinion. If we work at the problem a little longer we shall be able to harmonize the opinions of all. Mr. Gill has possibly explained why there is this conflict of opinion.

As to feeding outdoors, while *you* may be able to practice it in your locality at certain seasons, there are hundreds of others, in other localities, who had better let it alone entirely. It is always attended with the danger of a general uproar in the apiary. We can feed in this locality a very thin syrup made of grape sugar and water; but we have never been able to feed with any degree of safety a syrup made of granulated sugar and water—at least not so strong a mixture as you used, or we should have a fearful uproar. I think it is a safe rule to say that the average beginner, in our locality at least, had better feed in the hive, and that, too, toward night, so as to give the bees a chance to take in the syrup and get down to their normal condition after the excitement of the inrush of feed that comes from some mysterious place.

I well remember an experience I had at an outyard where I attempted to feed in the open air. Father had cautioned me against doing any feeding of that kind. But I wanted to learn for myself, *and I did*. No fact in my experience stands out more clearly than that. The yard was about a quarter of a mile from the road, but none too close. I fed in the open air. In the space of about half an hour I had the worst fighting and robbing, at almost every entrance in the apiary, I believe, I ever saw. There was a perfect pandemonium; and sting—I never saw *all* the bees of an apiary so vicious before. I took my bike, after contracting the entrances down, and left the apiary in a hurry. I came back the next day to see if things had quieted down, which they had to a certain extent; but for days and weeks afterward I had to exercise the utmost caution. The bees had had a good taste of stolen sweets; and whenever a bee got a sip of honey from any hive I was working on it started a rumpus. The high key of a few bees would start the whole apiary almost instanter.

Hello! here is another article already, indorsing starters.—ED.]

A PLEA FOR STARTERS AS AGAINST FULL SHEETS.

Conditions under which Drone Comb is Built; Identification of Large and Small Bee-keepers.

BY F. P. CLARE.

The article entitled "Forced Swarms," on page 233, prompts me to request a favor of you. Some years ago some one suggested that each writer should place after his signature the number of colonies he owned and operated. This suggestion was not acted on at all generally, and I suggest that with it the writer should state the length of time he has been in the business; thus, Jas. Smith, 10—250. This would enable all to give due weight to articles from men who are making a success of the business, and save beginners (to whom names are alike, and who are in danger of being led astray) expensive mistakes.

I am led to make this suggestion by that article from W. K. M. Who is he? Where located? How many colonies does he operate? are questions that suggest themselves on reading over his article in which he takes such decided ground against the use of "starters." One is led to think that he is either a beginner or a hard-up foundation-manufacturer, and in any case a rash writer; or, Mr. Editor, is it "locality"? Here in Ontario, if queens are vigorous we have no difficulty with an excess of drone comb, *if the brood-chamber is restricted to five L. frames, or one section of the Heddon hive.* As to the hordes of hungry drones eating up the surplus, we can point him to a yield of 200 lbs. to the colony, and not a comb in the yard but was built from a starter. Mr. Doolittle has pointed out again and again the conditions that lead bees to build drone comb (lack of storage room or a failing queen). "Forewarned is forearmed." Have the conditions right. But you may say, "That is the sticker." Not at all. As you clip the queens in May, mark those hives whose queens are clipped;

they were clipped the last of May, and so are two years old. Should one of these hives swarm (and they are the ones that will swarm to renew their queens), kill the queen and allow them to issue with a young queen) and you will have but little drone comb to prune out of your hives. I have seen such bungling work made out of full sheets, either in not fastening foundation securely or improper wiring, that I feel like cautioning beginners, or at least advising them to try foundation starters in a restricted brood-chamber before they settle down to the conviction that full sheets of foundation are indispensable to success.

That the building of comb is a stimulus to the colony, and that the combs built by early swarming are a clear gain to their keeper, all bee-keepers (are supposed to) know. Why should we ignore the experience of such men as Hutchinson, Doolittle, etc., and part with our hard-earned money for what we can do as well without?

In recommending your ten-frame Jumbo hives I have wondered that you never mention the eight-frame. As the eight-frame Jumbo is the equivalent of the-frame L., I find it a good hive for out-yards that are run for extracted honey, giving lots of room for the queen while using the standard bottoms and covers. Try a few and be convinced.

Bees have wintered better that usual. We lost but one out of 229, and one was queenless this spring.

Rideau Ferry, Ont.

[It used to be the custom, some years ago, to have writers indicate the number of colonies they were operating; but it so often happens that a man with a few colonies, a close observer, is able to contribute much of value to those who own several hundred colonies that I have come to believe that a man's ability to give information does not necessarily depend on mere bigness or number of his apiaries. Doolittle, for example, acquired most of his experience from a comparatively small apiary; and yet during that very time there were hundreds of bee-keepers owning five times as many as he, who were sitting at his feet as the Gamaliel of modern beedom. E. E. Hasty, the bright and versatile writer of the *American Bee Journal*, has only a few colonies; and yet I venture to say there is not a more practical man in all our ranks. On the other, hand an extensive bee-keeper may so deputize his labors to others that he may know but little about the details.

As to how many colonies Mr. Morrison has, I can not say; but he has kept bees in various climates, and has had an opportunity for observation that many of us have not had. He is educated, and trained to draw conclusions from the standpoint of the scientist, as well as a practical man.

As intimated by Mr. Gill, in the article preceding, this question of foundation versus full sheets hinges largely on locality, but not altogether, I suspect. It is *possible* that Mr. Gill and Mr. Morrison might trade localities, and each still be of the same opinion, after trying full sheets and starters.

Hello again! But here comes an old correspondent, a practical bee-keeper, one of the veterans, who indorses *full sheets*, and strongly supports Mr. Morrison.

FULL SHEETS OF FOUNDATION; MORRISON INDORSED.

I wish to indorse all that W. K. Morrison says on page 233 in regard to using starters in the brood-chamber. I have not used any for several years, for the reason that the bees would fill all or nearly all below the starter with drone brood. I prefer full sheets, but would use empty frames instead of starters, although all bees do not work alike. One of my neighbors told me that he did not need any foundation in his sections — that his bees built combs all right without any—a new experience to me.

J. T. VAN PETTEN.

Washington, Kansas.

[By way of variety we have still another advocate for starters.—ED.]

FOUNDATION STARTERS.

What to Do with the Surplus Combs.

BY GEO. W. STRANGWAYS.

Mr. Morrison, on page 233, takes a very extreme view with regard to the use of foundation starters. Taking his discussion as a whole, I have to say that, if you give me a colony able to raise good healthy drones, I will give you a colony able to give you a good supply of honey. By this, don't take me to mean that the more drones you have the better the results. But who ever heard of a colony of bees swarming without their drones, and, consequently, what will they do with full sheets of foundation? If the colony be a strong one they will certainly convert considerable of the brood foundation into drone comb, and thus foundation, with the busy bees' patience and valuable time, is wasted.

I have always used starters with the exception of a few trials with full sheets, and in those trials I was annoyed, not merely by having the bees convert some of it into drone comb, but by finding the combs warped, and that even with wired frames; and often when a hot spell would occur I would find the foundation leaning one comb into another, making very crooked combs, caused, of course, by the heat and weight of bees. My object in using foundation is to get straight combs, not brood-combs, for I don't think you can compel the bees to build all brood-comb. Of course, our object should be to have as much brood-comb as possible built; and to obtain that you must have colonies in condition for this work. All small colonies with young queens, and even medium to strong colonies, will build little else than worker comb. I get the greater portion of my combs built from such colonies.

In extracting, if I find a colony with more drone comb than is desirable after extracting (I work principally for extracted), I place the frames with much drone comb in them to the outside of the brood-nest; and if it is a case of too much drone brood, any that I find in proprer condition for dropping out of the cells, I simply take a sharp uncapping-knife, shave off their heads with the cappings, turn the comb on its side, hit the frame a light tap with the back of my knife, and if it has been well shaved you will find but few drones left. At the end of the season, or when the opportunity occurs, exchange these combs for some with more worker comb; then with the uncapping-knife cut out the drone comb and trim up the remaining, which will be worker comb, by cutting it wedge-shaped, and try again. Another season you will have your wax for profit. But such combs can be used for extracting, and will be filled with honey just as readily as those with worker comb. I use these regularly in the upper story for extracting.

With these conditions you can not use wired frames, or, in other words, starters and wired frames won't work together; but the other way wired frames must have full sheets, and then the bee-keeper takes the consequence; but wire is so light it would offer very little objection in the cutting.

Mr. Morrison's article has, of course, reference to tropical conditions and the production of comb honey, which I suppose would make some difference; but I am of the opinion that, even for comb honey, the drone pest could be kept in check by the system I speak of.

Elora, Ont., Can.

[It is a fearful waste to let bees build drone brood. It would be cheaper for you to put such combs in the solar wax-extractor, and substitute worker combs.

The sagging or stretching of foundation, or one sheet leaning against another, can be largely, if not entirely, overcome by wiring. Even with starters I would use wire. I have seen bee-keepers during extracting waste a great deal of valuable time in fussing with combs insecurely fastened in the frames, all for want of wire. If one's time is worth any thing, he can not afford to throw away good time during the rush of the season in handling these fragile combs like eggs. A very *little* time spent in wiring the frames in the off-season of the year, when one can do not much else, will save a *great deal* of time in the extracting season.

Now, to sum up this whole discussion, I am of the opinion, after reviewing all the evidence, that, in the majority of the localities in the United States, at least, one can manage to have all worker-combs built from starters, and thus save considerable expense in the way of foundation. Some do manage it, and why not others? If his locality will permit of it, let him cut down his foundation-bill, say one-fourth. While we are makers of foundation, in a large way, we desire to have truth come out, even if it should cut down our trade.—ED.]

THE FERTILIZATION OF QUEENS IN CONFINEMENT.

More about Fertilization in a Glass Carboy, referred to on Page 94 of our Journal for Feb. 1st; Fertilization of a Queen in a Small Wire-cloth Cage.

BY R. F. HOLTERMANN.

Since writing my last article on the above subject I have been in the province of Quebec for the government institute meetings. Other matters have kept me very busy, hence the delay in following up the subject as suggested by you. I wrote Mr. Rowsome privately for further information. The following bears upon the subject in hand, and is a reply to my letter for further particulars. The letter is dated Feb. 9.

"In reply to your favor of Feb. 7 I may say that I did not experiment with the fertilization of queens during the past season, as I was busy during the swarming season. This method of fertilization did not originate with me. I heard of it from a Mr. Inksetter, a farmer near Ancaster, who is sawing up a bush three miles north of here. He was ill all one summer, and amused himself with queens and drones in this way, with, so he says, complete success. I do not clip queens; but as I saw coition take place in the carboy, and laying follow, I came to the conclusion that the fertilization occurred in the carboy."

Now for a startling experience which I heard from a bee-keeper, Mr. A. B. Comstock, Sherwood, N. Y. Last summer he was inspecting a particularly fine colony, and found a number of queen-cells just hatching. He removed the hatching queen-cells, intending to dispose of them as soon as he was through with the colony in hand. This took considerable time; and when he returned to the bunch of cells there was just one hatching-cell left. He took the queen out of this, caged her under an old-fashioned wire-cloth cage, the ends frayed and bent down into the comb; it was about 4 inches square. Under the cage was some hatching brood, drone and worker; he also caged two or three drones with the queen Owing to the rush of the season it was some 16 days before he remembered the queen. Upon inspecting the cage he found the queen alive, and having laid in the worker-cells. One drone was dead in the cage. He cut a hole from the other side of the comb into the cage, out of which the queens and bees passed into the hive. The queen proved to be an excellent one; but to his surprise the eggs deposited by the queen under the cage produced worker-bees.

I can not help connecting the demijohn experiment and this. Our friend Comstock's method, if successful, would be very simple, as comparatively little time or ex-

pense would be involved. Many may try it this summer.

Now as to my experiment. Lack of time was the trouble with me. I could not watch the tent as closely as I should like to. In these cases the government should step in; and let us hope that the Department of Agriculture at Washington will receive at least $20,000 a year to carry on investigations. You will notice I attributed my failure to the nuclei with queens being between the tent and the large apiary, the noise of flying bees and drones drawing them to the perforated-metal entrance. By putting the nuclei on the other side of the fertilizing-tent the position in this respect would be reversed. This point I saw before last season closed; but my large buckwhat harvest prevented undertaking any more at the time.

At Syracuse Mr. F. H. Cyrenius, Oswego, stated he thought he could help me in preventing the queen from trying to get through the entrance through which the bees were flying, and kindly invited me to Oswego. Gladly availing myself of the invitation, to Oswego I went. He for another purpose shades this entrance through which worker bees fly, and throws all the light he can on the entrance to which he wishes to invite the queen. Now, I did not do this; in fact, the queen had not only to pass through a ⅞-inch-wide hole in a ⅜-inch-thick board at the rear of the nucleus, but through a hole of similar width in a ⅞-inch-thick board fence.

In the above I have given every thought I have upon the reason of my failure, and the remedy. It is, perhaps, with a little reluctance; but having gone so far, it is only natural to desire to crown the effort with success. Yet I hope many will try these experiments. Many can try the first and second, and a few the larger. All I ask is that, as success crowns the effort, it shall be reported in GLEANINGS. Of course, should Prof. Benton try these experiments it will have to be published through the regular channels.

Brantford, Ont.

[These reports are interesting and valuable; but they are so contrary to the experience of others that we are almost inclined to put an interrogation-mark after them. Is it possible that Mr. Rowsome, Mr. Inksetter, and Mr. Comstock could each have been mistaken in what each saw or thought he saw? Did fertilization actually take place in the carboy, or something which looked very much like it? The experience of Mr. Comstock seems to leave no doubt, if he is a man of veracity and experience, that the queen taken from the cell was actually fertilized by the dead drone found in the cage with her. The fact that there were eggs in the comb that she herself laid, and that these same eggs developed worker bees, seems to indicate that coition had actually taken place; but even if it had, I should be more inclined to think that the general rule, that queens must be fertilized in the open air, still holds true. Nature sometimes makes a deviation from the general laws laid down for her; and it is possible that she did so in the case reported. If so, it would be a new fact to us that queens may be fertilized in confinement in rare instances; and it is possible that there are conditions under which fertilization could be made a success when both the drone and the queen are confined. There is food for thought here, and an opportunity for experiment; and with Mr. Holtermann I sincerely hope the United States Government can at some time, if not in the immediate future, conduct some experiments that will give us a little light on this question. As it is, I commend this article to the consideration of Prof. Frank Benton, at Washington, and Mr. William Newell, of College Station, Texas, and other stations where apicultural experiments are being conducted.—ED.]

QUEENS WITH DENTED SIDES; A QUEEN THAT WAS CONDEMNED, BUT PROVED TO BE ALL RIGHT FOR HONEY.

Last summer I bought seven of your red-clover queens. One of them got hurt in some way in the mail. She had a small dent in her body, just below the waist. Mr. J. Zay advised me to send her back by return mail. But I thought I would try my luck. I had a very large colony of blacks, and put her in with them. Last Tuesday, March 17, I looked all my bees over, and found her still alive; but her body is all turned to one side. There is no brood nor any eggs. The other six are full of yellow bees.

Mr. Zay bought one red-clover queen of The A. I. Root Co. She was dark, and her bees still darker. He called them good for nothing, and was going to replace her with a golden queen, and he gave the Root queen to me. I caught a swarm of black bees on the 4th of July, and put the Root queen in on the 6th, and took 42 nice sections of red-clover honey from the Root queen.

Now, Mr. Editor, you and I do not agree on finding no brood within two inches of the Hoffman-frame top-bar. I have Root chaff hives, Hoffman frames, Hill device, and a five-inch cushion on top, and they have brood right up to the top-bar. My single Dovetailed hive has a little brood down in the center. In spring it's too cold to rest on a top-bar, and in summer it is too hot. Bees, as a rule, will select the safest part of their hive for their brood. I don't

think Dr. Miller's splints make a hive any warmer, nor Mr. Root's wire any colder. But if you want brood up to your top-bars, you must do as Mr. A. I. Root advised in his A B C book — get out your blankets and keep your hives warm. I shall have to buy 50 supers this year; so please tell us, are the sections in the outside rows on the M super with six fences as well filled as a P super with 8 fences? HENRY ASAM.

Carleton, Mich.

[Sometimes the dent in the side of a queen seems to do no harm. I remember several of our best breeders that had a slight dent somewhere in the abdomen. The queens were very prolific, and their bees excellent honey-gatherers. So far as I can remember, they did uniformly good work, and filled out their allotted days. It is quite possible to conceive, however, of a case where the dent may be so deep, like the one you describe, as to cause a permanent injury. We book your order, therefore, for another queen.

The case of Mr. Zay simply shows that he did not know a good thing when he had it. A great many bee-keepers judge a queen by her looks and not by her performance nor by the performance of her bees. If she had been golden yellow, and good for nothing, he possibly would have been very well pleased with her. "Forty-two nice sections" after the 4th of July is not a bad record.

It is true that warmth of the brood-nest will make a great difference in the amount of brood built in a brood-frame; but Dr. C. C. Miller uses the same kind of single-walled hive that we do, so that his brood-nests are no better protected than ours. But the season of the year makes a very great difference as to how far the brood is built up to the top-bars. If you are in the habit of having double-walled hives throughout, and look your combs over just before the honey-flow, you will find the brood much nearer the top.

Regarding the relative difference between the M and P super, the one using outside fences and the other not, I can not remember that any specific comparisons have been made between the two supers; but I have noticed this: That fences, when placed between the sides of the super and the side of the brood-nest, have a tendency to make a better filling of the sections on the outside surface. At all events, it has been reported that all those supers having outside fences give better-filled outside sections. But the M super, Danzenbaker of ten-frame width, is now supplied with an extra fence, so that the two supers are now on an equal basis.—ED.]

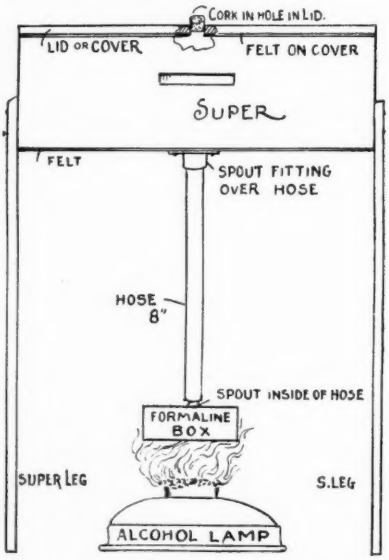
CURING FOUL BROOD; ANOTHER SUCCESSFUL USE OF FORMALIN AS A GERMICIDE; HOW TO APPLY, ETC.

In February 15th GLEANINGS, C. H. W. Weber speaks of curing foul brood with formalin, and I decided to write you of my experience along the same line. Never having seen foul brood, it secured such a hold in my yard before I discovered it that every hive was more or less affected with it. You can imagine how I felt; and, not knowing exactly what to do, I went to Mr. Couse, secretary of the O. B. K. A., and he kindly came and went over my yard, and recommended me to cure them according to the McEvoy plan, which I did; and up till September 15th no signs of the disease appeared in any of my hives.

Another thing, my extracting-combs were wet, as I did not place them on the hives after extracting for the bees to clean out, and Mr. Couse said it was a pity to melt them up, and that it would be a good idea to try the formalin on them as recommended by Prof. Harrison. I did so, and no hives on which I placed the combs showed any signs of the disease at last examination, Sept. 15.

Another fact, I had a set of dry brood-combs that showed foul-brood marks, and I decided to try an experiment on them. I placed them in the fumigating-box, and fumigated them with 1½ oz. of formalin; let them stand over night, and next morning fumigated them again with 1 oz. of formalin. I then hived a second swarm on them, and no foul brood appeared up till last examination, about the last of September.

Now, do not think that I claim said hive is free, for the germs may be still there, and may develop next year.



For fumigating the combs I used a super as follows:

I first tacked felt around the bottom and the top edges of the super. I then nailed a board solid to the bottom of the super, and bored a ¾-inch hole in the center of the same. Over the hole I tacked a piece of felt 4×4, and cut a hole in the same to cor-

respond with the hole in the bottom of the super.

I next got a piece of engine-hose about 8 inches long, and a round pressed tin box, 4 inches in diameter, 1½ inches deep. I took this to the tinsmith, and got him to make a ¾-inch hole in the center of the lid, and solder a 2-inch spout on the same so as to fit tight when shoved inside of the hose, and solder the lid tight to the box. He then took a piece of tin 4×4, cut a ¾-inch hole in the center, and soldered a spout on to fit tight over the hose. This I nailed tight to the bottom-board.

For a lid to cover the super I used a heavy flat board with a ¾-inch hole bored in the center, and cork to fit in the same.

Now set your eight or nine combs in the super; place the lid on top; leave the cork out and put something heavy on the board to hold it solid on top of the super, but do not cover the hole. Remove the tin from the bottom end of the hose, and pour into it 1½ to 2 oz. of formalin; place in position again; and, under the same, place an alcohol-lamp. Light the lamp; and as soon as you detect the fumes of the formalin coming out of the hole of the lid, cork it up, and a few seconds after remove the lamp.

I would recommend leaving the combs in the fumigating-box from 12 to 18 hours, and be sure to have the box and attachments as nearly air-tight as possible.

Above I give you a drawing, showing, as nearly as I can, how I had the box arranged.

J. W. THOMSON.

Britannia, Ont.

[Mr. Thomson speaks of using 2 oz. of formalin. I suppose he means the liquid, for it comes in two forms—in the powder, and in the liquid condition. The former is less powerful, but will accomplish the same result if enough of it is used.

So far reports have shown that formalin gas, when properly applied, disinfects the comb. We have had so far, I think, some five or six reports, all decidedly favorable save one. I hope that bee-keepers all over the country who have the disease in their apiary will immediately conduct experiments, and report results. If we can disinfect combs without melting them up, from foul-broody or black-broody hives, we shall have made a long stride ahead. I still have my doubts about it, but am open to conviction.

This reminds me that Mr. C. H. W. Weber, of Cincinnati, has prepared a little pamphlet on the treatment of diseased colonies with formalin gas. The price of the pamphlet is 25 cents.—ED.]

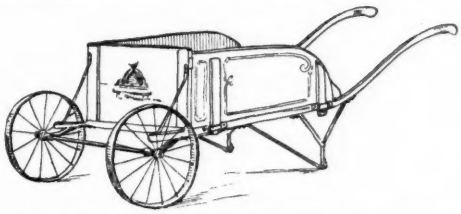
AN IMPROVEMENT IN WHEELBARROWS SUGGESTED.

I wish to call your attention to what I think would be a very valuable improvement in wheelbarrows for bee-keepers, and for other people too, for that matter, and yet so simple that I am surprised that others have not called attention to it long ago, which I am not aware any one has done.

I inclose a sketch which will explain itself. The barrow in the cut is supposed to be a modification of the Daisy, and the main points of difference are simply these:

1. Two wheels on the axle, instead of one—one at each end of the axle; and if the axle were made a third longer, and the wheel end one-third wider, it would be better.

2. Make the floor of the barrow *level*, the front end level with the back end.



3. Make the end-board perpendicular, instead of slanting backward, and make it a little higher than in the Daisy.

4. Make the handles with a much greater upward curve, if it can be done. This is very desirable.

5. Make oil-cups, or orifices, in the bearings, for oiling the axles; and these would be much better if protected by a little movable cap to exclude the dirt. These oiling-cups would be a valuable improvement in the Daisy, or any other good wheelbarrow.

Now, this barrow would not be as pretty and artistic as the Daisy, but it would be far better than any other I have ever seen.

It would not be for ever ready to tip over when in use, as the single-wheel barrow is. You would not have to lay a piece of 2×4 scantling across the back end, and lay in a loose floor, in order to carry supers of comb, hives of bees, or jars of honey level; and when you removed one of two jars, you need have no fear that the other would instantly tip over—jar, barrow, and all. And then your perpendicular back-board would be of some use to you, instead of being of very little use as it is now.

Then when you wished to weigh your hives for winter (or weigh any thing else) all you would have to do would be to place your scales upon your level barrow, wheel out among the hives, and go to work.

JOHN W. MURRAY.

Excelsior, Minn, Mar. 12.

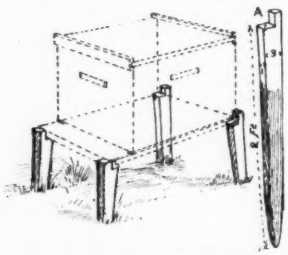
[Wheelbarrows have been made with two wheels; and while they have certain advantages, they have disadvantages which, in the minds of many, more than counterbalance. Two wheels would make more friction, and involve more expense. But the worst feature is, they will not run in a path or on a narrow board. If one had good nice level driveways smoothed down, or a bee-yard as smooth as a brickyard, a two-wheeled barrow would do very well. A single wheel in a narrow path would run much easier than two wheels on ordinary sod.

Your idea of curving the handles, and having the front board perpendicular and the platform level, is all right. Take that same wheelbarrow and put one of the wheels in the center, and throw the other aside, and you have a better carrier, or at least one that will suit the average person and the average beeyard better.

If I were going to use a two-wheeled vehicle I should prefer a hand-cart, for then the load would be carried almost entirely by the wheels. In the barrow that you show, the man would have to carry too great a proportion of the load. The plan of having the ordinary barrow with the platform slanting toward the wheel, is for the very purpose of shifting the load as far as possible on to the wheel. When the handles are curved and the platform horizontal, there is quite a tendency to drag or catch the legs unless the grass is mown pretty close.—ED.]

A SIMPLE AND CHEAP HIVE-STAND.

I have been considerably bothered to find something to set my bee-hives on. If I set them on bricks the bricks are let down by the earth-worms, and the blue grass grows up in the way of the bees. So I have hit on this plan: I make 4 stakes 3 in. wide, one inch thick and two feet long; drive them in the ground about 1 foot; space them one



near each corner of the bottom-board and level up with a spirit-level, with the notch A pointed inward from the sides; slip the hive in, and there you are. My stakes are made of creosoted pine, from a piece of bridge-timber. Of course any durable timber will do—for instance, bois-d'-arc hedge cuttings. My boys call this philippenoing. What do you think of it?

Sladensville, Ky. R. C. HOLLINS.

[I had often thought of four simple stakes, but had never got around to try them. The plan is simple and cheap. It offers another advantage, in that the operator, in working over the hives, can shove his toes under, permitting him to get closer to the hive. This may seem like an insignificant advantage; but when one is bending over and trying to get out the furthest frame on the opposite side, and keeping it up day after day, he finds it an advantage to get as close to the hive as possible. Then there is another advantage. In moving the hives one can stoop down and reach under them with his fingers. Many of the hive-stands do not permit of this. The only objection to the stakes is that they can not be readily shifted. But if one has laid out his apiary carefully he can drive stakes, by line and by measurement, just where he will always desire to have his hives, whether on the collective or individual line plan.

I do not know but the Root Co. had better consider the idea of having stakes offered for sale, soaked in some permanent wood preservative, at so much a hundred or thousand. The bulk that they would take in shipment would be very small; and when one ordered a hundred hives he would order, of course, 400 stakes. The expense of this would be insignificant, and he would have first-class hive-stands all ready to drive in the ground, ready to receive his hives as soon as he has them nailed up.—ED.]

A BEE-KEEPER'S FIRE-LOSS.

Our apiary is located 3½ miles down in the river swamp below Macon, upon an Indian mound which is about 25 feet high, and about 300 feet in diameter at the bottom, and about 150 ft. at top. We have the top filled with bees. Then we have cut a spiral shelf, beginning at the top, and going down and around the mound till we reach a point just above the highest fresh-water mark known. At the foot of the mound, and above high water, we built a house last spring to work in and keep our supplies, etc. In fact, every thing connected with the bee business, except the hives of bees, was in this house. On Sunday night, March 22, this house, with every thing we had, except the bees, and eight or ten hives of them which were not near enough to catch, were burned up, so we have nothing left except the bees, and a few—perhaps 2000 or 3000—old sections on the hives that remained over, and were not taken off the hives. We didn't know of our loss for a week after it happened, as the water was too high to get there. Thus our prospects are largely blasted for this spring. The honey-flow will be on in about 7 or 8 days more. We will try to fill orders for queens; but nuclei and bees by the pound we can't. Our loss in supplies and fixtures is between $400 and $500, with no insurance, to say nothing of the loss of honey and trade due to destruction of our supplies. A. L. SWINSON.

Macon, Ga.

[We regret to hear of your loss by fire. This only emphasizes the importance of having what is known as insurance for bees.—ED.]

THE RIGHT KIND OF FREE ADVERTISING; MORE THAN LIVING UP TO THE GOLDEN RULE.

I read with interest what you say about Mr. Hutchinson as a queen-breeder, page 241. Well, he carried this further than any fair-minded man should ask for; but I inclose you a letter from J. P. Moore which will prove that there is one more of them. The facts in the case are as follows:

I purchased last year of him six queens, which all came through alive, and were safely introduced, but laid very sparingly. The bees tried at once to supersede them by building cells. Although I frustrated their intentions at the time, they got the best of me finally, and all of them were superseded by fall. I wrote the facts to Mr. Moore, asking him how soon he could send me some others, telling him at the time that I did *not* hold him responsible for the bad luck I had, and am of the same opinion now, as he fulfilled his side of the deal all right. (The inclosed letter explains his ideas of it.) I have written him that I accepted his offer, but thought it no more than right that I should bear half the burden at least, and therefore would send him $3.00 as soon as the queens arrived here.

Now, such men should have a little free advertising, I think, if honesty is worth any thing. M. R. KUEHNE.

Pomona, Calif.

[We take pleasure in presenting Mr. Moore's letter. It is in pleasing contrast to some letters sent out by breeders.—ED.]

Mr. Kuehne:—I am very sorry to hear that the queens were superseded. I think you are right. They evidently got injured in the mails. They were bunched together, three cages in a bunch, when I mailed them; and, as they were single when they reached you, they must have been in a "smash-up." I will replace them free of charge the last of June or the first of July. I have as many orders booked as I can fill by the 10th or 15th of June. Many thanks for your kind words. J. P. MOORE.

Morgan, Ky.

CUTTING ALFALFA AFTER IT IS IN BLOOM.

I enjoy noting the editor wrestling with the alfalfa-cutting question.

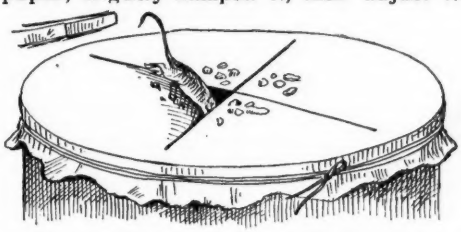
There is hope for the bees and owners, because there are likely to be behind time alfalfa-cutting harvesters. The best time here to cut alfalfa is right after it begins to bloom: and every day it stands after that is so much better for bees. Alfalfa honey is very scarce in our hives on account of this condition. M. D. NICHOLS.

Escondido, Cal.

[The hope of the bee-keeper in the early-cutting regions will rest largely on the tardiness of the mower in cutting some of those large fields. Mr. H. D. Watson, the man who has 3000 acres of alfalfa at Kearney, Neb., said to me when I spoke of this matter, "Don't you worry at all. The early cutter in theory will always be late. The result is, he will cut his alfalfa late rather than early. Even if he believes in early cutting he will generally practice late cutting." Now, whether this is so or not throughout the irrigated regions, I do not know. But knowing human nature as I do, that farmwork is usually behind, I should assume that the alfalfa-grower would let his crop get into bloom before he did much cutting.—ED.]

A RAT OR MOUSE TRAP.

I am illustrating herewith a trap that may be useful for bee-keepers. It can be attached to a deep crock or barrel, or any box round or square, whichever comes handiest. Take a piece of heavy stiff springy paper; slightly dampen it, then adjust to



crock or barrel, and tie down securely by twine. Let the paper then dry; and, if desired to be kept, give it a coat of shellac or any other oil or varnish. For a few days put bait in the center of the paper, within easy access of the victims; then remove the bait and cut paper along lines shown, and glue bait to apex centers, and the trap is ready, self-adjusting, and will do the business. Vermin caught can be destroyed by water in which they plunge, or by fumes. R. V. MURRAY.

Cleveland, Ohio.

[Mr. R. V. Murray is our regular artist, and takes a great deal of interest in every thing that pertains to bee-keeping. Knowing that rats and mice are enemies to bees, and nuisances to the bee-keeper, he sketched this simple mouse-trap that any one can make. I do not know whether the idea is original with him or not. I think I have seen it somewhere; but it is good, nevertheless. The trouble with ordinary traps is that, after they are once sprung, they are useless till reset; and, besides, when they do catch a mouse it must be taken out or there will soon be a foul odor. The trap shown in the illustration resets itself as soon as it has done its work. If one will put a strong solution of brine in the crock, the victims will be pickled as soon as they are caught, and there will be no smell. After the vermin have all been caught, the string can be loosened, and the contents of the crock dumped and buried. I have one of the regulation mouse-traps in my office; and every now and then I can detect a familiar odor, and then look down at the trap, back of my desk; because, you see, I forget all about the trap until my olfactory nerves apprise me of the fact that something is wrong. Then I have to get the nasty carcass out of the trap, and reset.—ED.]

MOLDY COMBS GNAWED DOWN.

On page 155, in reference to bees biting off the cells of combs, I would say I have had old combs that got moldy on part of the combs, and I put them in hives where there was a new colony of bees, and the bees went at the old moldy combs and cut them away down to the bottom of the cells,

and they did not build the cells out again. But when the comb was not moldy the bees did not disturb it at all. C. K. CARTER.

Eagle Grove, Iowa.

[If the bees had needed more room they would have built out those gnawed-down combs; and if they have not done so already they will do so yet when the honey season opens up.—ED.]

GOOD WINTERING IN A DAMP WET CELLAR; VENTILATION, DAMPNESS, AND TEMPERATURE CONSIDERED.

I took my bees out of the cellar March 20, and find them in fine condition — only one dead colony out of 183. The bees are bright and healthy, and in remarkably good condition. I am a firm believer in taking bees from the cellar as early as possible, the benefit of which I have proven by my own experience in the past. The condition of my cellar was such that almost any one would condemn it for the purpose of wintering bees; but notwithstanding I never had bees winter better, either outdoors or in the cellar. My cellar is built in a clay bank with about three feet of dirt over it, and this dirt is covered with a shingled roof. It is 8 ft. wide, 28 ft. long, and 6½ ft. high, with two doors in place of where Doolittle has four. The past winter, it has been exceedingly damp, with some water actually standing on the cellar bottom. It has always been said that one of the most essential conditions of cellar wintering is that it be practically dry; but I have just wintered my bees in fine condition with the reverse condition. It would also be considered that I put almost too many bees in a cellar of that size. The cellar is provided with two ventilators—one that opens at the bottom of the cellar, admitting fresh air, and the other opening at the ceiling, and both go directly up through the roof, with cap at the top to prevent light from entering. This cellar has maintained almost an even temperature all winter. The thermometer registered just 52° all winter, until just before I took them out, when it went up several degrees. The stores which the bees wintered on were largely fall honey, although there was more or less clover honey in most of the hives.

I have come to the conclusion that so much dampness in a cellar is not so disastrous after all, if the temperature and other conditions are all right; and I write this that others may draw their conclusions.

Marion, Mich. R. S. CHAPIN.

[I think it is generally conceded that a cellar may be reeking with dampness, and yet give good results in wintering, provided other requisite conditions are present. One of those conditions is uniform temperature, and a reasonable amount of fresh air; but our friend Doolittle, who has had a good many years of experience, and ought to know, believes that, with uniform temperature, ventilation is not essential, for his cellar is kept closed from fall to spring, except, perchance, the few times when he goes into the cellar to make examinations.—ED.]

QUESTIONS REGARDING THE PRODUCTION OF COMB HONEY.

1. Is it better to remove supers, or the honey from them as they fill, and replace them, or to add other supers, thus tiering up?

2. For comb honey, is it proper to use full sheets of foundation?

3. Does the foundation mar the taste of comb honey? T. F. RAWLINS.

Elk Creek, Cal.

[1. A good deal will depend on whether you have many supers to remove. If the season is very slow it may be advisable to take off the filled sections one by one, substituting empty sections in their place. But in large apiaries it is the usual practice to remove the whole super. If the super is not quite filled, and honey is coming in well, raise it up and put an empty super under it. If the season is toward its close, put the new super on top.

2. If you wish to get the most honey in a given time, we would advise using full sheets of foundation.

3. No. But combs built off from foundation have a slight midrib that bee-keepers can detect or notice if they think of it; but the general consuming public never thinks of it, and won't if we don't call their attention to it.—ED.]

SOMEE USEFUL DEVICES; A HANDY SCRAPER; A UNIQUE FOUNDATION-CUTTER.

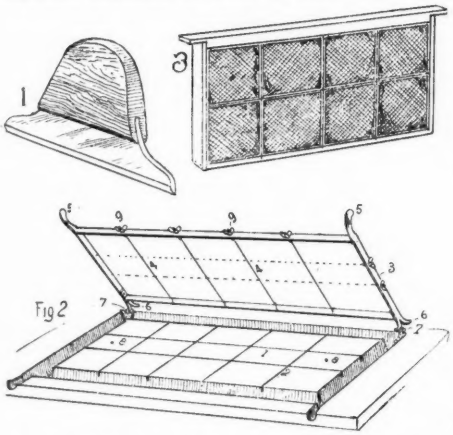
The enclosed sketches are my own ideas, and I use them successfully. I have not seen any thing in GLEANINGS or elsewhere that can do what each one of the tools here shown can do in the same time. No. 1 is a hive and bottom-board scraper. It is a piece of glass cut in shape as shown, with a piece of hard wood for handle, with saw-kerf in to hold the glass. It beats any kind of steel blade. I use its sharp end for scraping sections also.

No. 2 is my instantaneous foundation cutter. It cuts a pound of wax into any size, sheet, or starter, or both, at the same time, *absolutely true*. Any child can operate it by placing the sheets of wax on the block of wood, pulling down the frame. The cutting is done by the wires. The block is hard wood, with saw-kerfs in to correspond with the wire that cuts the wax. The dotted line around the table or block is a rim for the cutter-bar to rest on when down to prevent breaking wires. The wires are on a loop-shaped hook with thumb-screws for tightening wires.

The frame is made with a groove all around, and the wires are set to correspond with the grooves in the block; for whatever size the operator wishes strips for starters in brood-frames can be cut also, if desired. The frame is made by bolting two pieces of steel together, leaving space all around for

setting wires, and hinged on to the block, at each corner.

No. 3 is a plain frame, made to hold eight sections, 4¼ × 4¼, and used for feeding unfinished sections to bees in the cellar that



No. 1.—Block of wood with saw-cuts therein, corresponding to wire in frame 3.

No. 2.—Saw-cuts; can be made in any direction, and crossing each other at any point, same as the wires in frame

No. 3.—Iron frame, with handles 5-5 and stops 6-6, provided with strung cutting-wires 4-4 and thumb-nuts 9-9, for tightening wires.

7-7.—Hinges with bolts on which frame moves.

8.—Screw-holes to secure block or machine to table.

The machine consists of the iron frame, necessary wires, thumb-nuts, block of wood for foundation, screws, 2 small bolts for hinges.

are short of stores, by removing one or two frames. This is put in place, and bees are not disturbed. If not needed for feeding they can be put in the extractor the same as brood-frames. This is better than stacking up supers and letting bees clean up, as you get it where needed, and can feed it any time. To put sections in the frame, loosen the top-bar; when in, drive nails to hold firm. A. A. CLARKE.

Le Mars, Iowa.

[All three of your devices are excellent. The frame for holding the sections is simply the application of an old principle of the wide frame when comb honey was produced wholly in such frames in full-depth supers. The scraper is very simple and cheap; but would not the glass become dull very soon? and would it not be just as well to use pieces of glass without handles and throw them aside as soon as they are dull? A wooden handle would be more convenient, it is true, but it would be a rather nice job to put the piece of glass into the handle, for the simple reason that glass varies in thickness; and a saw-kerf that would just fit one piece would be all wrong for the next.

Your scheme for cutting foundation is very unique. I would not have supposed for a moment that a wire, drawn however taut, could be shoved through a whole pound of foundation, leaving a nice clean-cut square edge. If it will do this in every case, without breaking the wires at annoyingly frequent intervals, we have a device that could be used to very good advantage by every bee-keeper. We will endeavor to give the idea a trial ourselves. In the mean time we should be pleased to have reports from those who can test it.—ED]

QUEENS BALLED; SUFFOCATED OR STUNG TO DEATH.

After reading Stray Straws for Mar. 15, p. 224, I'm of the opinion that you did not quite strike the key-note when you say, "But haven't I seen stings lodged in the body of a balled queen?" No, Mr. Editor, bees never leave their stings in a queen or drone, neither do they leave their stings when stinging other bees to death. I believe I wrote you a short time ago that queens are never stung while being balled. It is true that a queen is worth less, as a rule, after once being balled; but she meets her death through suffocation and starvation. I once saw one queen sting to death 7 queens, and the first queen was stung 7 times, held off at arm's length. For just cage a queen and put in a bee from another hive, and watch results. You will never find a sting left in the one killed.

Matanzas, Cuba. C. E. WOODWARD.

[Perhaps you have stated the general rule; but I am very sure, for I remember the circumstance, that I took one queen out of a ball that had a sting in her body. The fact was strongly impressed upon my mind at the time. I have spent some five or six summers rearing queens in an apiary of 400 nuclei. My chance for seeing the exception that proves the rule was good. Isn't it another rule that has come to be accepted, that bees never *invariably* follow a precise rule?—ED.]

PARAFFINE PAPER FOR COVERING SECTIONS IN THE SPRING.

What is best to place over the sections to keep them clean when in the supers over the bees? I used the Danzenbaker paraffine mats, but the bees eat them badly. I don't know why — possibly "location," or possibly "starvation," or possibly a mischievous inclination; but this I know, it is "an abomination," and I should like to know what others use. A. J. KILGORE.

Bowling Green, O.

[We regret to say that the paraffine paper did not prove to be a success, largely for the reason that the directions were not in all cases carefully followed, where it was stipulated that old newspaper, or some other packing of some sort, should be crowded on top of the sections; and even when the packing was put on as directed, some bees would gnaw the paper. Mr. Danzenbaker has abandoned the paper now. We had not ourselves advised putting any thing over the sections except the super-cover or hive-cover, and this should be a bee-space above the sections.—ED.]

BEE-PARALYSIS; IS SULPHUR AN APPARENT OR REAL CURE?

I believe bee-paralysis is just as contagious in the South as foul brood in the North. I first noticed the disease in my yard in July, 1902. It reduced the one colony to a mere nothing, which I placed with another colony for winter, when the trouble stopped until this spring. When young bees began to hatch, the disease promptly broke out in 14 out of 30 colonies, many of which at this date are weaker than they were in January, while colonies not affected have begun swarming.

I read Mr. C. H. Pierce's article in GLEANINGS for Feb. 15, page 160, recommending sulphur as a cure for paralysis, which he claims he obtained through GLEANINGS by Mrs. Hawkins. He (by error) states that in two weeks the *bees* had entirely disappeared, which was corrected on page 185. Now for the other part of my story. Not wishing to lose my bees entirely by a roundabout way by using sulphur when fire is cheaper, I decided to try it on a small scale. I sulphured bees, combs, brood, and all, on three hives. Result, one week after, very few bees dying; some sealed, and some larvæ just hatched. Second dose, second week, same condition, only less sealed brood. Third week, disease gone; sealed brood gone, small amount of larvæ; very few bees (cured). Now, will they stay cured? I think not, and why? The machine has simply stopped for lack of fuel. When there is more hatching brood, the disease will take fresh hold. If this is not correct, why does it stop with brood-rearing in the fall, and begin with it in the spring? Sulphur destroys only the culture and not the disease. I don't wish to contradict Mr. Pierce, but I don't think he saw far enough. But if he is right and I wrong I hope you will apologize for me when he comes through Ohio. I can only plead ignorance. G. B. CRUM.

Pearson, Ga., Mar. 23.

[When you speak of sulphuring your bees in combs, I assume that you mean sprinkling the yellow powder on the bees.

As you surmise, many diseases that are contagious — perhaps all of them — have what may be called the inert and active state. There are the spores and the bacilli. The former would probably not be affected by any cold application of sulphur; but the latter might be killed by it. As long as the *spores* are not destroyed the disease may reappear.—ED.]

BEE-PARALYSIS; STRONG BRINE AS A CURE.

Much has been said from time to time in GLEANINGS about bee-paralysis, its cause and cure. I see on p. 720, Sept. 1, that so far there is no cure that has ever been named for it. Paralysis is not very prevalent here, although I have seen several cases where bees died outright with it. I will now give my experience with it, which I hope may be beneficial to my bee-keeping friends, although you may think this a simple remedy, and it is; but I have made a permanent cure in every case that I have treated with it.

In 1900 I had two colonies of bees strong enough to begin storing honey in the supers, on fruit-bloom. About that time they were taken with paralysis very badly, and at the beginning of white clover they had left the supers, and I took them off, and they were dwindled down to less than half their numbers. There were quarts of dead and dying bees in front of the hives. Then I looked them carefully over, and found more brood than the bees could actually cover. The queens were bright and active, and the brood looked all healthy; but they were now going down rapidly. I made up my mind to kill or cure them by experiment, and this is what I did: I went to the pork-barrel and took out a dish of strong brine. I went to one hive, opened it, took off the cloth on top, took a wisp of fine grass, dipped it in the brine, and sprayed them all over the top of the racks quite freely, then the entrance of the hive, and all the sick bees in front several feet around, and closed it up again. Then I repeated the same operation with the other, and watched the result. In three or four days I saw a marked difference with both colonies. There were not half as many sick bees, so in four or five days from the first spraying I repeated the operation, and in two weeks after the first spraying there was not a sick bee to be found in either colony, and it has never returned.

As foul-brood inspector I have found several other cases, bad ones too, that I have treated in the same way, with perfect success in every case. In 1901 I had two more of my own (mild cases). I treated them separately, one at a time, to see if my test was all right, and it was as before. These two first colonies that were so bad gave me one super of 28 sections on the windup of white clover. I intend to experiment more with this, and in a little different form. It may prove to be of some value to bee-keepers, and it may not. It certainly has with me, so far.

A question arises in my mind—will this have the same effect on bees in a southern climate it does here in Michigan? Let them test it and report. Bees must have plenty of salt here. I salt mine about once a month during the breeding season. Where they get water for that purpose it keeps them healthy. This is what led me to try the brine-spraying process. After this has been tried by those troubled with bee-paralysis I should like to have them report through GLEANINGS. A. H. GUERNSEY,

Pres. Ionia Co. Bee-keepers' Ass'n.

Ionia, Mich.

[We have had reports before, to the effect that salt would cure bee-paralysis. We have also had others to the effect that it was an absolute failure for the purpose. But it may be that spraying the bees and combs

with a strong brine solution would be more effective. I should be glad to hear from our subscribers who are afflicted with the disease in their apiaries; for the treatment prescribed is so simple, and so easily applied, that it would be well to try it. Bee-paralysis is apt to be in a good many localities in the United States, and we ought to have in the neighborhood of 25 or 30 reports during the summer.—ED.]

THE PROMINENT BEE-KEEPERS OF CUBA; THE DANZENBAKER HIVE FOR COMB HONEY.

Mr. G. E. Moe is still alive, but looks and limps around "ghost-like" after his thousand booming colonies. *Health all gone.* And the American tramp? Big apiaries booming, and he "down in the back" and the honey wasting.

F. O. Somerford, another thousand-hive man—where was he? Gone to the States for for his health, after rustling so many bees for so long; and I could name a few more. But I shall have to mention seeing two of the big lights that create and distribute ideas—not the "common Sam Slap" kind either, but solid "facts about bees," facts that cost money to know. Mr. Danzenbaker, of hive fame, was one of the gentlemen, and I am sure that his coming to Cuba will help the comb-honey business here in quality and quantity, as there is not another man on the globe who is so well up on comb honey as Mr. D. is — no, not one. To know him and his hive is assurance enough that it is the best comb-honey hive in the world—none excepted. His hive, not super, I have always classed with the Heddon; but I am sure now that it is the only real thing for comb honey—real nice comb honey, I mean. The super to it I have known all the while could not be beaten, so I have a thousand of them on hand, but had tested only a few of his hives—a pair—and they have the most comb honey to the hive, or more than $3.00 to the hive ahead of the rest of the best hives in the same ranch, although not the strongest colonies. So I will say truthfully, "Danz. hives" for comb honey, first, last, and all the time.

The other gentleman is a man from Russia—a college man, an engineer, draftsman, etc., but a thorough pencil artist, schooled in bee culture in Russia, with many years, and moves to his credit in America, east, west, and south. He is just over from Florida with a boatload of bees, 300 colonies, and is temporarilly located at Cabanas, on the north coast of Cuba, with his real American tramp hive, and goes again to Florida for mangrove bloom in May.

The features of his hive, after sketching and trying them by the dozen, are many; combination comb and extracted-honey hive, queen nuclei included in the hive (same hive) along with wax-growing department; and for a tramp hive it's always ready with extra queens, as well as other good features. But I am of the opinion that by the time its inventor, Mr. Patrin, gets a thousand or two of them on the road at the same time, he, too, will come up missing, as captain, and then what? W. W. SOMERFORD.

Caimito, Cuba, Jan. 4.

[I will explain that the foregoing came, as will be seen by the date, some time ago, but it was mislaid. As it contains some facts of interest we place it before our readers, even at this late date.—ED.]

PREVENTING SWARMS FROM MIXING; THE M'EVOY SHEET PLAN.

As I read about McEvoy's plan for stopping the outcoming of two or more swarms at one time, and mixing together, in the April 1st issue of GLEANINGS, and that you wished to hear from others who had tried this plan, I will say that I have practiced this plan for the last three years, and it has worked satisfactorily.

I use an old quilt or blanket, which I keep handy for this purpose; and as soon as two hives show signs of swarming at the same time I put the quilt or blanket on one of them, putting bricks on the corners of it to keep it down; and as soon as the other swarm is hived I take it away. It sometimes happens that the hive covered will swarm within half an hour again. I think it is a good plan, and one that saves both money and work, and a plan well worth trying. G. M. HANSON.

Christine, N. Dak., Apr. 7.

RAISING QUEENS IN UPPER STORIES; HOW TO TELL WHEN THE BEES ARE SUPERSEDING THE QUEEN.

Can a good queen be raised from the queen-cells that are raised by the bees in the super above the honey-board? How can you tell when a queen is being superseded?

Manhassit, N. Y. J. SCHNEIDER.

[Good queens can be and are raised in upper stories; but very possibly when the queen-breeder would like to get the cells reared upstairs the bees will not carry out his wishes. A prosperous colony in the time of the honey-flow, or if fed a little every day, will usually rear cells in the upper story, without trouble; and the queens from such cells are equal to the very best. But the bees must be given cell-cups supplied with royal jelly and larvæ.

When a queen is about to be superseded you will usually find cells started in the hive. She acts more or less feeble, and lays sparingly. If the hive is left to itself, the next thing you will see when you examine it again will be the old queen missing, and the young one doing service in her place.—ED.]

EXCLUDERS; PUTTING THE ROUGH SIDE IN FOR THE CONVENIENCE OF LOADED WORKERS.

I want to call your attention to an idea that came to me within a year, in regard to excluders. If you use reason you will

see that bees can pass through loaded the same way the zinc is punched, better than from the opposite way. Now, isn't this the cause of complaint that bees do not work as well through excluders as without? It seems to me very certainly the reason. It seems strange, too, that, as there have been so many fine points brought out, that this has never been thought of; and as there are thousands of excluders made, regardless of which side is up, it is of great account. Of course, part happen to be right.

I desired to call your attention to it, feeling interested for all. I would by all means put it smooth side toward the loaded bees, whether whole sheets or in strips between wood.

I use excluders wholly for both comb and extracted honey. I got 1000 lbs. in one rainy and cold season (from 7 colonies, spring count).

Hallowell, Me. E. P. CHURCHILL.

[We have for years made our Alley drone-excluders and honey-boards so that the smooth edge is presented to the in-coming laden bees. It is barely possible that occasionally a trap or a honey-board might be sent out with the zinc put in the wrong side to.—ED.]

STERILE QUEENS AND SUPERSEDURE.

If an old queen gradually, in spring, say May or early June, becomes sterile, what is the natural procedure of the workers? Will they of their own accord start queen-cells when they find she is fast becoming useless, or will they wait till it is too late? If they choose the former method, what becomes of the old queen?

CHARLES A. CROWELL, JR.

Winthrop, Mass., Mar. 24.

[When queens begin to fail through age, or from injury, the bees will usually start the building of cells before they give out entirely. Of course, it may sometimes happen that, before such cell-building begins, the old queen may die. In that event, so long as there is larvæ old enough, cells will surely be raised. If they raise cells before she fails, and a young queen is hatched out, the two may be allowed to exist in the hive side by side without interference. But this is the exception. As soon as the young queen appears on the scene the old one as a rule steps down and out. Whether mortal combat takes place, resulting in a victory for the young and strong, or whether the bees themselves take matters into their hands, and kill the old queen, I can not say. Perhaps Doolittle, or some or our veterans, could tell just what is done.—ED.]

FEEDING BEES WITHOUT STIMULATING.

My bees are rearing brood, and have consumed nearly all of their honey. What and how can I feed them so as not to excite the queen to more vigorous egg-laying? Do bees ever rear brood if no pollen is in the hive? R. T. WISTERMAN.

Gasport, N. Y.

[Give your bees some combs of sealed stores. We make it a rule, every fall, to set aside a good supply of such combs. In the spring, when it is too cold to do much feeding, we insert one of these combs in the brood-nest.—ED.]

MORE TECHNICAL AND SCIENTIFIC AND LESS ELEMENTARY MATTER CALLED FOR.

I would rather miss any part rather than that called "General Correspondence," and wish there were more of R. C. Aikin, and also more by that other Miller—Arthur C., whose very didactic way of speaking did not prevent his remarks from being very suggestive and interesting. The way of having each article followed by an editorial comment I particularly like. It sets one to thinking in a very lively way to compare the two points of view, and consider which is nearer the truth. GEO. A. BATES.

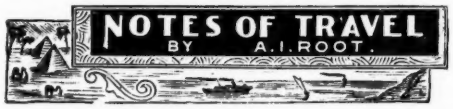
Highwood, N. J.

YOUNG'S METHOD OF WIRING FRAMES; A CORRECTION; DEPARTMENT OF QUESTIONS AND ANSWERS LIKE A BIG CONVENTION.

You get the wrong idea from the wiring-board on p. 247. Mr. Thwing, on p. 236, gives my idea, but in a little different way; that is, to *not* get too much loose wire off the spool at once. He begins in the middle of the frame, and has to lose 2 in. of wire on each frame, making 83 ft. of loss on 500 frames. The tension is only to hold the wire, and not to make it tight in the frame, as you say. See my cut again. Put the wire through 1–1, and then pull through far enough to go back through 2–2; then put it through 2–2 Now the trouble is at hand. Hold the end of the wire in the right hand, and pull the wire through 1–1 with the left hand, working both hands simultaneously until you have enough wire through to make 3 and 4, and some to spare; then you have at no time no more loose wire than does Mr. Thwing. This board can also be fitted up for putting in the foundation without moving the frame.

Mr. Editor, I like your department of questions and answers. It makes me feel as if I were at a great big convention, and you were chairman. Let more write and tell what we know, and let Mr. Root weed it out, but, as Dr. Miller says, "respectfully." That is right, Mr. Editor. Hold a tight rein on the doctor. When old horses do run off they do more harm than the young ones do, for they usually take the whole family with the old horse. But do not let Dr. Miller drive you through every mud-hole. A. P. YOUNG.

Cave City, Ky.



RAMBLER AND HIS APIARY.

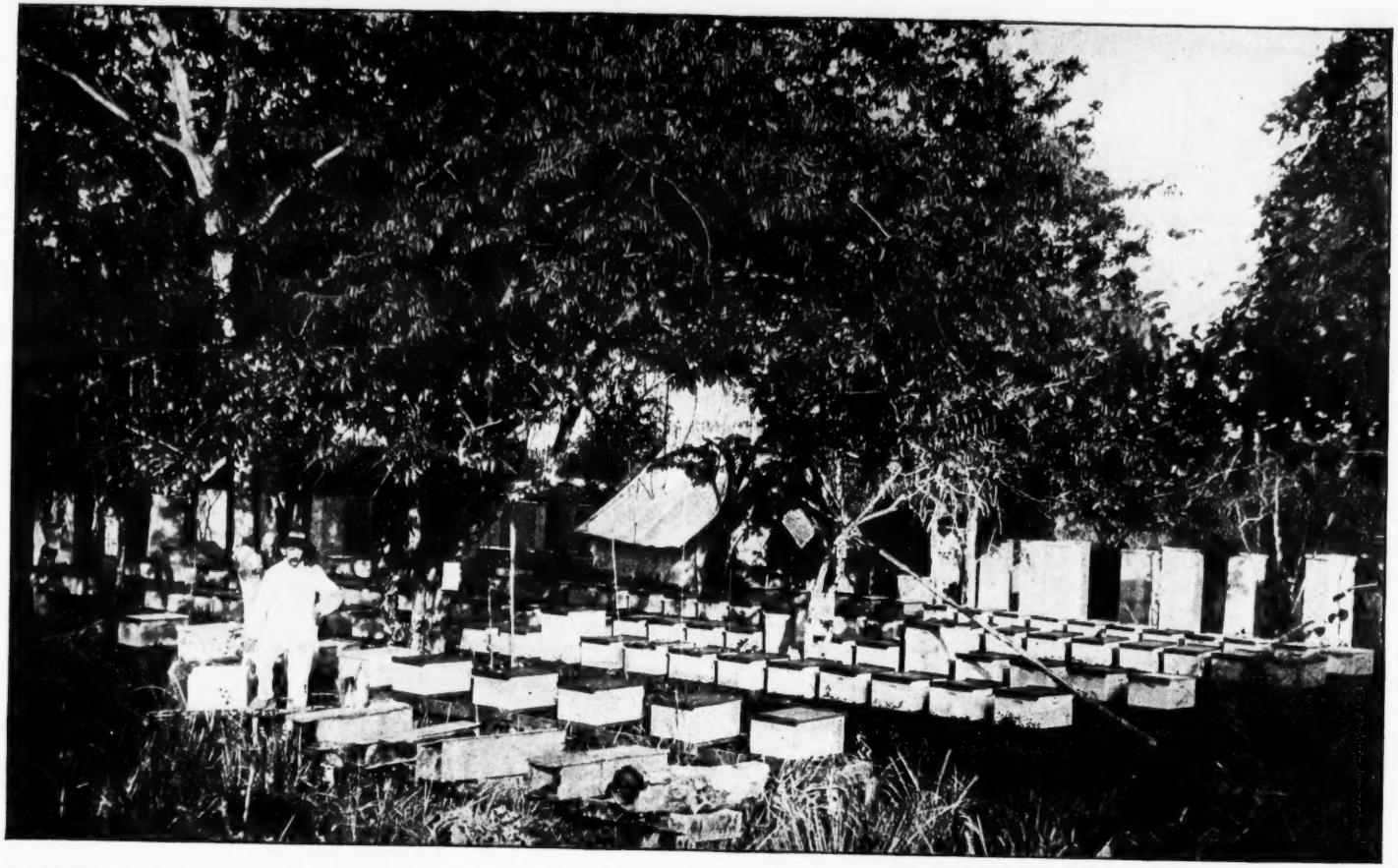
On my arrival in Cuba, about Jan. 1, one of the first things I asked about was something concerning Mr. Martin, his location, etc. Mr. de Beche informed me that Mr. Martin was sick, and had sent him word that he was going to one of the city hospitals, and that, on receipt of such word, he had phoned to every hospital in the city and they declared that no such person had been there. Mr. de Beche therefore concluded the Rambler must have got better, and that I would find him at his ranch in Taco-Taco, near Paso Real. I accordingly made a trip to our apiary. After I reached there, however, Mr. de Beche wrote me that Mr. Martin *was* in the city after all, and that, after reaching the hospital, and not getting better, he wrote to Mr. de Beche to come and see him. Mr. de Beche, with that letter in his hand, went to the hospital Mercedes, but was again told there was no such person there, but he finally succeeded in reaching him. Either the people at the hospital had got things mixed or else Mr. Martin, when he reached there, was too sick to write his name plainly. His death came very suddenly, as you have been told by friend Danzenbaker on page 99, Feb. 1. After his death I went to that same hospital, accompanied by Mr. Danzenbaker, and had an interview with Miss Anna E. O'Donnell, who took care of Mr. Martin while he was there. This lady informed us that Rambler talked but very little. He was too sick. She said the doctors pronounced his disease pernicious malarial fever—a kind of fever that takes patients off very suddenly. Before he died, when some of the friends were visiting him he tried to talk to them but was too weak. One of them gave him a pencil and some paper, and he wrote a few words that could hardly be made out, and then gave it up, being too sick to even write.

This hospital is one of the finest in the city, if not the best, and has every appliance, apparently, for the care of the sick. In fact, it is the best-arranged institution of the kind I ever saw. In my conversation with the nurse I was satisfied that they employed the best medical skill, and that all their arrangements are clear up to date for the care of the sick.

Some time afterward I visited Mr. Martin's apiary at Taco-Taco, and had quite a talk with Mr. Gilson, the young man whom Mr. Martin employed a short time before his death. The apiary is located but a few rods from the station, and in a thicket that, in wet weather, would be a wet swamp. It is, without question, an ideal place for bees; but it certainly is not a very good place for one to live in, especially when the swamp is full of water. Mr. Gilson (now in charge of the apiary) tells me that they were advised to get their water at a well in the town, or drink boiled water. I believe Mr. Martin did this for a time; but when they were hurried with business, and quite a stream was running close to the apiary, they got their water from that stream, and Mr. Martin drank of it freely. The water was so high in that locality that it got into their honey-room, and they were obliged to set their hives up on stands to keep the water from running into the entrances. Poor Rambler became so much interested in the wonderful progress he was making in building up an apiary that he doubtless not only neglected his drink, but I fear, from what I am told, he neglected to take the necessary time to prepare wholesome cooked food. Of course, we do not mean to find fault nor criticise our poor friend who has now gone from us; but it may be well for the *living* to consider and take heed. I for one would not keep my health very long unless I had good wholesome food at regular hours. I have tried "cold victuals" several times in my life; and while that does very well for one or two meals it does not pay as a rule, at least, to follow it up.

Let us now consider a little why Mr. Martin was so busy. When he first came to Cuba last April, he stopped with our good friend Mr. Glenn Moe and his wife at Candelaria. His rations there were of the best, as I happen to know by personal experience; and Mr. Moe and his wife very much enjoyed having the Rambler an inmate of their home. His first venture was to agree with Mr. Moe for 100 three-comb nuclei—two combs of brood and one of honey; and in consideration that Mr. Martin would furnish every thing in the way of hives and fixtures, he got the nuclei at the low price of $1.50 each. This was all that Mr. Martin had for his start, with the exception of five Cuban hives made of hollow logs. You will notice these in the picture on another page. He selected a locality close to a railroad station, and right in a swamp, or woods where flowers were plentiful and laden with honey. Since the sad outcome of this undertaking, it is very easy for us to say, "Why didn't he go a little further from the station, on the bank of the river where high water could not make his ranch so wet?" We do not just know *how* he managed to build up those nuclei; but we *do* know that at the time of his death there were very nearly or quite 300 colonies of bees, a great part of them filling two-story hives, and that he had taken 16,800 lbs. of extracted honey and 3½ tons of comb honey. This is certainly remarkable. Not only did these bees work with a vim, but Mr. Martin must have worked early and late, and left no stone unturned to break the record in the way of building up an apiary in an astonishingly short space of time, at the same time securing a crop of honey that seems almost beyond belief.

I very much regret that our people here



AN UNPUBLISHED PHOTO OF THE "RAMBLER" APIARY AT TACO-TACO, CUBA; TAKEN BY MR. MARTIN HIMSELF IN JULY LAST; MR. MARTIN STANDS AT THE LEFT IN THE FOREGROUND.

in Medina, by a blunder, made a statement on the cover of our bee-keepers' catalog, to the effect that he commenced with only 50 nuclei. Mr. Boyden, who furnished this item, says that, as nearly as he can remember, he understood Mr. Martin himself (while he was in Cuba) to say that he had only 50 nuclei. It may be interesting right here to look again at that slate shown on page 469, June 1st.

RAMBLER'S BLACKBOARD.
Apr. 14 - Completed forming. 100 Nucli - two in a hive. Omens: Friday. Saw new moon over left Shoulder. All bees swarming. Hundreds absconding. Swarm with little Honey. Swarm any old way.
16-17-18th - Rain. Thunder and Lightning and ——.
25th Rather warm weather but not up to Cal' Delightful changes from hot Sun to Clouds, Shade and Coolness.
29th - Advance guard of Mosquitoes arrived -

RAMBLER'S SLATE OF ONE YEAR AGO.

The above tells us that he started with only 50 hives, but there were two nuclei in each hive. It also reveals another interesting fact: That notwithstanding this tremendous feat in increase of honey, a good many swarms went to the woods—he says "hundreds;" but this was, of course, only a sort of hyperbole or pleasantry. Is it not possible that those same mosquitoes he pictures (some of them puncturing his bicycle-tire) were the ones that laid the foundation of the fever from which he died?

We must keep in mind that, in tropical countries like Cuba, there is no winter to hinder rapid work; in fact, there is scarcely a day in the whole year when one can not go right along rearing queens and taking in the honey. I presume Rambler made no effort to keep his colonies pure nor to raise his queens from any special strain. I know this—that his bees were rather cross when I attempted to go around among the hives, even though honey was coming in at a pretty good rate. Mr. Gilson has taken from the apiary a considerable amount of both comb and extracted honey since Mr. Martin's death; but I have not yet received an account of how much.

Now, friends, while we bend our energies toward securing great crops from any of these wonderful gifts from the hand of the loving Father, let us be careful about overtaxing these bodies of ours by taking risks. We read in holy writ, "What shall it profit a man if he shall gain the whole world and lose his own soul?" Of course, this text does not apply to the case in question; but we may, perhaps, put it a little differently: "What shall it profit a man if he shall gain the whole world and lose his health or possibly his *life*?"

A CORRECTION—"CARLOAD" FOR "CARTLOAD;" ALSO SOMETHING ABOUT OVERSTOCKING.

On page 293, second column, the word carload is used where it should have been cartload. Instead of getting it "right to a *t*," as the old saying is, we got it "wrong to a *t*." Friend Hochstein objects to this, as I felt sure he would as soon as I saw it. I was away when it went to press. Here is what he says about it:

Mr. Root:—If I do not want to be crowded off my present location I shall have to take either A. I. Root or his printer to task, and call for a correction of that article, p. 293, which says I take a "carload" of honey in every time I go to the station. It should read a *cartload of two barrels*. The reason I did not want to tell you what my crop was is that it fell far below the average I had set. I have already had two letters asking for locations here since your article appeared. I inclose you a piece of one, which speaks for itself. Here it is:

> Please accept my congratulations for having won Mr. A. I. Root's biggest and best praise; and, by the way, as I am now preparing to put in another apiary, it's no more than natural that I should wish to secure a location where it is possible to haul in a carload every time, and no other territory is represented to me to equal that of famous Punta Brava; and I'd like to strike the country before that storm of bee-keepers arrives which Mr. Root has called forth. P. T. O.

Those who write to me first, I am not afraid of. I can discourage *them;* but such as come and rent land, and put bees on it before one is aware of it these are the ones I fear, and there are plenty of such in Cuba.

Punta Brava, Cuba, Apr. 16. C. F. HOCHSTEIN.

While we are on this subject, here is another letter that came from Cuba in the same mail:

Mr. Root:—I have just finished extracting honey at my home apiary at Guanabana, and have now taken 34 tierces of honey from 200 hives, or 250 lbs. per colony. I am looking forward to the time when you and I can have some good long talks together on producing large honey crops in Cuba. This is probably the largest honey-record made in Cuba this season.

Haven't you wished yourself back in Cuba? Well, Catara Real keeps on talking just the same, and I often think that she and Somerford should live together.

Guanabana, Cuba, Apr. 16. C. E. WOODWARD.

Perhaps I should explain that friend Woodward is in company with a wealthy man who is interested in sugar-cane, and who has control of the territory for miles around. No bee-keeper nor anybody else can plant an apiary within the range of his bees' flight without the knowledge and permission of his partner. And, by the way, the Havana *Post* just informs us that our good friend Moe has made a purchase of *three thousand* acres of land. Of course, I do not know; but the idea will keep suggesting itself that Mr. Moe wants things in such shape that his territory can not be invaded in the way friend Hochstein suggests, without his knowledge and consent.

MAPLE-SUGAR MAKING.

From Cuba to Northern Michigan may seem somewhat abrupt; but the last of March found Mrs. Root and myself once more at the "cabin in the woods."

Around said cabin, on the hillside and in the valleys, are perhaps 100 maple-trees; and as our maple-sugar book has been out about 17 years, I decided it would be nice to make a test of all the modern appliances for the convenience of the maple sugar and syrup maker. The Champion Evaporator Co., of Hudson, Ohio, said they could fit me out with a small apparatus, combining all the modern improvements, for about $45.00; and on the 27th of March we tapped our trees, set up the machinery, and set a carpenter at work making a sugar-house over it. In just one week the house with all its appointments was done, and our whole outfit was snug and secure from the weather. The man who built it is only a rough carpenter, and was glad to do the job for $1.75 per day; and as it was all made of cheap lumber ($10.00 per 1000) the expense was not over $25.00 or $30.00.

I at first planned to carry my sap from the trees on the hill down to the sugar-house in iron pipes, and we may do this yet; but as the trees are pretty well scattered, some on low and some on high ground, I decided to carry the sap by hand until we found out better what was wanted. I did some studying before locating the boiling-place. If the ground is level, or nearly so, the camp should be in the center of the cluster of trees; but *several* things must be considered. First, we wish to avoid carrying sap uphill—better have the camp a little lower than the trees, even if you walk further. Again, as it is dangerous to leave an expensive apparatus (even if it is automatic) very long by itself, it is well to have it near the dwelling, even if this brings it off at one side of the trees. Ours is right in plain sight of the back door, at the foot of a ravine, well sheltered from rough winds and storms, and lower than most of the trees. One of my first jobs was to make convenient paths to the trees, and to have these paths so arranged as to have a *regular route*, and at the same time save all unnecessary steps. I hardly need say that, as a rule, the most distant trees should be visited first, that we may never carry any sap *away* from the camp, then have to carry it back over the same track. These same rules will apply mostly to gathering with a horse or horses, as well as to gathering by hand.

The sap is first poured into a galvanized storage-tank. This material is all right for *cold* sap, but should never be used for hot sap, or hot syrup or sugar. Even if the pails are covered, it is best to strain the sap into the storage-tank. We do this by pouring it into a bag of cheese-cloth. This bag is held open by being sewed to a hoop, the hoop being supported a little below the upper edge of the tank. The automatic apparatus that regulates by a float-valve the flow of sap into the boilers works complete. When boiling rapidly, a good-sized stream of sap can be seen flowing from the valve; but as soon as the boiling slackens, this stream closes down, so the sap in all the boilers stands at one uniform height; and the machine can be adjusted so as to keep the level at one inch, two inches, or any desired depth in the boiler. And, by the way, it is much easier to push the evaporation when the sap is gauged to run shallow, say not over 1½ inches in the pans. Our little machine has four pans, and each pan has divisions, so the sap is always moving from the first apartment, where it goes in cold, to the last, where it may be drawn off a steady stream of finished syrup.

Now, these four pans can be disconnected in an instant (and that, too, without wasting a drop of sap or syrup), so that one person alone can easily handle any one of them. Every thing fits exactly anywhere. All joints are ground connections of solid brass. So far we have used nothing but dead and rotten wood picked up near the camp; but the furnace boils down so rapidly this small size will easily run 100 trees, although when I bought it I told the makers I expected to have only about 50 trees.

When we tapped our trees the neighbors all round here had closed up sugar-making, saying the unusually warm weather through the whole of March had started the buds, and that the sap had become "buddy." From what experience I have had, I have an impression that nice syrup can be made at any time when it freezes nights, and thaws days; but to do this, the pans must all be *clean*, and the sap gathered and boiled before any trace of fermentation has taken place. Our evaporators are all of heavy bright tin, and our syrup is as light in color, and as fine in flavor, as any I ever saw.

Some of the happiest hours of my boyhood were while I was running a little sugar-camp, and I confess that, during the past few days, when I passed from tree to tree, toward the close of a beautiful spring day, it made me feel as if I were a boy *again*.

After you have emptied the bright new tin pails, the ringing sound of the drops of sap as they strike the tin bottom, tinkling here and there off through the woods, has a fascination for *me* like few things else in the whole line of rural industries; and the sight of the leeks and adder-tongues springing up from their mossy banks, and peeping out from under their leafy blankets, makes me feel like swinging my cap and shouting my joy at the advent of springtime.*

* At one time during our sugar-making a snowstorm came up. The carpenter had not quite got his roof over the boilers; but he hurried it up, and by night had it all secured from the wet. Meanwhile I had stirred around and collected some dry wood — enough to last me quite a spell, piling the dampest of it around the arch and all about the chimney; and as the sap kept running it was necessary to boil pretty well into the night. As I sat in a chair just before the furnace-door, listening to the rain outside, and reflecting that it could neither harm our apparatus nor could it get into the sap (because the pails were all *covered*), I stirred the fire again, and, making the sparks fly, and taking in the breath of the woods and the aroma of

What can be nicer for old people who enjoy these things than a pretty little camp, with all the things nicely cared for, to await sugar-making each spring? We are going to put away every thing, when the season closes, so it will be ready for use next time; and if *we* are not living when "springtime" comes again, it will be ready for some of the children or grandchildren who have inherited from us a love of the country and the woods.

In view of keeping every thing in apple-pie order, our sugar-house is made so it may be closed up tight during summer and winter. The sheet-iron smoke-stack slips off just below the roof (inside); and after it is stored in the dry in the loft, a door shuts down and closes the hole in the roof. The cupola, made to let out the steam from the steaming-pans, also has two horizontal doors to close up, so snow can not drift in, in the winter time. These doors are wide open when boiling, unless a severe storm makes it needful to close one or more of them.

In closing, I take pleasure in giving a letter from the Champion people that touches upon some important points.

Mr. A. I. Root:—We are much pleased with the report of your experience of manufacturing maple syrup. It seems you are getting on to the job all right; however, there are a few points, or, rather, a few questions, that I can answer that will no doubt be a benefit to you.

Our card of directions is all we have to send out to our patrons, but we are always ready to give explanations as far as we are able, where questions are asked.

In regard to bucket-covers, they might be a little handier in gathering if there were no bails, but the object of the bail is to keep them from blowing off the pail, as frequently you have a rainstorm with pretty strong wind

We will now explain to you how to operate the felt strainer: Of course, before using, it should be thoroughly wet in clear water. The syrup-maker should have a can for a settling-can, which is of pretty good height, and the strainer is hooked on to a little wooden frame which lies across the settling-can. After the syrup has been strained through the felt strainer until it becomes filled up, and the syrup does not run freely, it should be taken off and laid in the front pan in the evaporator. In large rigs, or where there are large bushes, there should be two felt strainers for use. While the sweet is boiling out of the one last used, place the other one in position for use When you wish to make the change, take the one out of the pan, turn it wrong side out, and rinse thoroughly in clear water and wring it out, and it is ready for use. Thus, you see, they are easily cleaned and you do not lose any of the sweet.

Your idea, we take it, is to can your syrup hot. We do not consider that necessary. We do that generally when the syrup is cool, and perhaps we can give you a pointer in canning syrup. The syrup-cans are generally made a trifle large, so that, when syrup is done to weigh 11 pounds to an even gallon measurement, it will not fill the can; but it is not necessary to fill the can entirely full. Put in one gallon of syrup; set the can a little on a tilt, with the corner where the screw top is the highest, then place the screw top over the nozzle and press in on the sides of the can until the syrup flows over the nozzle a trifle; hold it there until you screw down the top so that it is entirely tight. You will have, by running the syrup over the nozzle a trifle, a double seal. You will have your seal in the top of the screw top; you also screw the top down into the syrup, which makes it doubly sealed, and you will readily see, by pressing in the can until the syrup runs over the nozzle a trifle, that you have every particle of air out of the can. That is a very important point in canning syrup. Syrup canned in this way, and stored in a cool dark place, will hold its flavor for a long time.

The point of gathering your sap and boiling it in at once is correct.

Another important point, have your buckets securely covered, so that you will get no rain water mixed with the sap; and when the syrup is finished and strained through the felt strainer, although you may let your strained syrup settle in the settling-can, there will be but a trifle of sediment even in the bottom of the can, when the syrup is turned out. People having a quantity of syrup to can should have a little box made on purpose to set the can in, which will hold it in proper position, and work with a little lever and press the sides in.

We are glad to note that the syrup season has not ended, and that you still have prospects to experiment to some extent as yet. It seems singular that syrup-makers in that section have already gathered their buckets, as it would not seem to us that, in that northern climate, the buds had started so as to injure the syrup.

The syrup in our section this season has been merely nothing; but we have been informed, by parties in Wiscousin, that they are having an excellent sugar season in those northern climates.

We saw a statement in the papers a day or two ago, that estimated the loss of the sugar-makers in Northern Ohio at five hundred and fifty thousand dollars.

In regard to piping your sap down the hill, we would say we never had any personal experience; but we know of several parties that run their sap down hill through galvanized gaspipe.

Mr. A. A. Low, of New York, is operating some 50,000 trees in the Adirondacks, and he pipes pretty much all of his sap down the mountain, into the valleys.

If you should pipe this down and connect your piping with the regulator on the evaporator, we would suppose it would be nice to have your storage-tank at the top of the hill. We see no reason why you could not connect your piping with storage-tank at the top of the hill, and attach the same to the regulator on your evaporator.

You would have to keep a close watch on your tank, however, and not let the sap run low unexpectedly. If the sap all ran out you might burn your pan unless you were watching it.

In regard to storage-tanks, we do not agree with you that they should not be made of galvanized iron. It is no detriment to the sap, as it is never heated in the tank, but galvanized pans for boiling sap we most decidedly object to. CHAMPION EVAPORATOR CO.

Hudson, Ohio.

With the present good prices for maple syrup I think we can well afford to look after our groves of maple-trees Some time these beautiful trees may be planted for this purpose; but at present there are thousands of pieces of woodland where beautiful sugar-camps may be made in a comparatively short time by cutting out the other timber. Every sugar-maker has noticed the extra quantity as well as quality (sweetness) from trees in or on the edge of a clearing. Cutting out every thing else, or, if not quite that, cutting out all undergrowth of no value, will very soon make a wonderful difference in the thriftiness of the maples. If a tree dies now and then, it makes the best firewood in the world; and with prices from $2.00 to $2.50 for a cord of 18-inch wood (during the past winter it has sold for that

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the boiling sap, I said to myself, "Let millionaires have their luxurious dwellings and fine appointments; let the aristocracy have their gold and silver and diamonds, with their fine clothing, dining-rooms, etc. I would rather have my 'cabin in the woods,' with my little sugar camp out here in the darkness of the night, than any of these things that the great world craves and delights in—at least I *suppose* men delight in these things or else they would not sacrifice so much for them." It makes me think of the old poem:

Cleon dwelleth in a palace,
In a cottage I;
Cleon hath a score of doctors,
Not a one have I.

There is another verse that I can not recall; but the ending is—

"Happier man am I,"

and I think that fits my case exactly.

here in Northern Michigan), it may not be a bad investment to grow maple wood for fuel and for hard-wood flooring, etc. Aside from this, what is prettier on a well-kept farm than a neat and tidy maple grove? Start one going for your grandchildren, and you *may* live to see them enjoy it.

There is one unpleasant feature about maple-sugar making in localities where the soil is clayey. In the springtime it often gets to be very muddy around the camp in going to and from a sugar-bush. In our locality in the Traverse region of Northern Michigan, however, the soil has so large a percentage of sand that we never have any mud, even after the hardest rains. No standing water is ever seen anywhere. In choosing a locality for a sugar-bush I should greatly prefer a soil of this kind.

MAPLE SUGAR AND MAPLE SYRUP AS A FEATURE OF SOCIAL GATHERINGS.

I do not know that there is any other one thing, I might almost say in the whole round of "God's gifts" to his children, that is equal to nice maple syrup for furnishing a pleasant entertainment to visitors who may drop in, or for social gatherings of people, either young or old. Who is there that does not brighten up at the mere mention of a sugar-party? Many times when friends come in upon us unexpectedly, how easy it is, with a good store of maple syrup, to set a panful on the stove, so as to be able to bring in to the guests some "warm sugar" when they least expect it! and if it is at a season of the year when you can find a snowbank in some protected place in the woods, what a wonderful treat it is to give each guest a plateful of snow along with a saucerful of hot sugar! If there are any of our younger readers who have never enjoyed dipping the hot maple sugar in a pan of snow so as to make maple wax, let me tell you there is a treat in store for them. Then there is another thing yet. It is not everybody who has yet learned to make "maple cream;" in fact, Mrs. Root and I got on to it only this past season. This can be made of the last run of the sugar-bush, even of the syrup that is usually called buddy; or if the sap is soured a little in making it, and the sugar is a little backward about graining, that will not harm it. Boil it down very carefully until it gets hard when you throw it down on the snow, or dip it in cold water. Set it off the fire, put it in saucers, and let them cool, or get nearly cool, without any stirring. When nearly cold, commence stirring the syrup vigorously, and keep stirring it till it gets white like cream. If you manage it just right, it will be nearly as white as cream, and so soft that it can be dipped up with a spoon when perfectly cold—something of the consistency of ice cream, perhaps a little harder. But it is to me the most delicious sweet, and I do not know but I might say the *most* delicious dish of any kind that the world has yet furnished. I have never heard of maple-sugar *ice* cream; but let me suggest right here is an opening for somebody to make a small fortune. You want pure maple sugar or pure maple syrup, made with a Champion evaporator, such as I have described. This maple cream may be put away, say in jelly-tumblers, or something of the kind, and kept indefinitely. Have a lot of these in some convenient place; and when relatives or the neighbors' children come to make you a visit, and you want to give them something nice for a treat, just give each one a little sauce-dish of this maple cream. My impression is, there is more than one little chick around our "cabin in the woods" who will remember "Aunt Sue" for a long while; and I should not wonder if the juvenile mind would for long years associate her name with the dishes of maple cream she gave them.

ALFALFA—CAN IT BE GROWN ON MICHIGAN SANDY SOILS?

We take the following from the Michigan *Farmer*. It answers the question, at least partially, that has often come up, "Will alfalfa thrive as far north as Michigan, and especially in sandy soils?"

Some people have been growing alfalfa for several years on the same ground, and speak very highly of it; in fact, all who have been able to get a good catch are pleased with the results.

There are several reasons why alfalfa should have a place in Michigan among our forage-plants. First, it thrives well on poor sandy soils where it seems impossible to get fair returns from the other clovers. Second, it thrives during periods of severe drouth when other crops are practically burned out. Third, it is relished by stock; and cows or young cattle after having eaten of it, either as a soiling crop or as cured hay, refuse other feeds like June clover or timothy. Fourth, it is nutritious fed alone, being equal to timothy and a moderate supply of bran. Fifth, as a coarse feed for hogs, either as pasture or to be fed dry in winter, I know of nothing that equals it. Sixth, it produces three crops per year; it should be cut when in bloom, which is generally from May 20 to June 1; again about August 1, and again about the last of September.

The main difficulty seems to be in getting a good catch. At least 20 lbs. of seed should be sown on an acre, more would be better. In April, 1901, I sowed 20 lbs. per acre with beardless barley as a nurse crop; I went over the ground with a roller after sowing; got a fair catch I think harrowing in the seed would be still better. Don't pasture it with any thing any time if you wish to mow it. Don't try to raise seed, as it will not mature well in this climate. Put it on your highest, poorest ground; manure it after the first year, and work it in with a harrow. N. A. CLAPP.

Oakland Co., Mich.

I may add that, in regard to the time of sowing, alfalfa can be put in at any time in May, and good results are obtained by sowing it in June. Right close to our cabin in the woods, in Leelanaw Co., there is a field that has been producing fair crops annually for a good many years.

HUMBUGS AND SWINDLES.

MR. ROOT:—I inclose an advertisement and a letter for your consideration. I believe these fellows should be exposed. I did not expect to get the belt free, but wanted proof of their insincerity.

Cedar Mills, O., April 16. STEEN FREEMAN.

The newspaper clipping that came with the above letter shows an electric belt flashing out lightning in every direction. Here is the way the advertisement starts out:

ELECTRIC BELT FREE!

Great electro-chemic belt! Why be a sorrowful, weak man, when this electro chemic belt will restore you to health and happiness? This great free offer is made to you, and it holds good for a few days only; so, write to-day—it is yours for the asking, without one cent of cost to you. This is a real gift for advertising purposes. We are anxious to give it if it will be any help to you. You simply send us your name, and we send you the belt. It is yours to keep for ever, and we under no circumstances ask for or accept any money for it, either now or in the future.

I have often noticed this class of advertisements, and sometimes, I am sad to say, in the religious papers. I have thought several times I would write, just in order to find out what it was they give away free, or how they would get out of it. To tell the truth, I have several times been tempted to think they *really had* something that was such a boon to humanity they were sending it out free of charge in order to introduce it. It seemed as if the thing *must* have merit or they would not offer it in that way. But the letter that friend Freeman sends along explains the matter. It starts out in this way:

MR. STEEN FREEMAN:—Your marked symptom-blank has received our careful and most thorough examination, and it will not be necessary for us to tell what your trouble is. You know it, and presume you know the cause of it. What you must consider now is its cure, for you probably know what it will lead to.

You see the above is so worded that it will fit any malady, and, furthermore, it is printed on a printing-press, and not on a typewriter. "You know it, and presume you know the cause of it." To make a long story short, they say his trouble is of such a serious nature it will require some powerful medicine to go along with the belt. The belt would not do him any good without the medicine; and it would not be any advantage to them to give it away under the circumstances, but quite the contrary. *With* the medicine, however, it will perform a great cure. The regular price for such treatment as he needs and must have (and that, too, at once) is $20 for a course of two months; but under the circumstances, on account of their sympathy (?) for him in his bad predicament, they will let him have the medicines at bare cost, $5.90. The belt *will* be sent absolutely free, according to contract.

Now, I am not prepared to say that *all* these things advertised absolutely free of charge are of this character. The great "Heidelberg Institute" is not quoted at all by Dun or Bradstreet, as you may suppose, although they profess to have a capital of $100,000. Of course, they make a wonderful parade of the great things that *electricity* does. They do not make mention, however, of the opportunity it gives people of this ilk to *rob sick people* by persuading them that electricity performs wonderful cures.

WAX PROFITS.

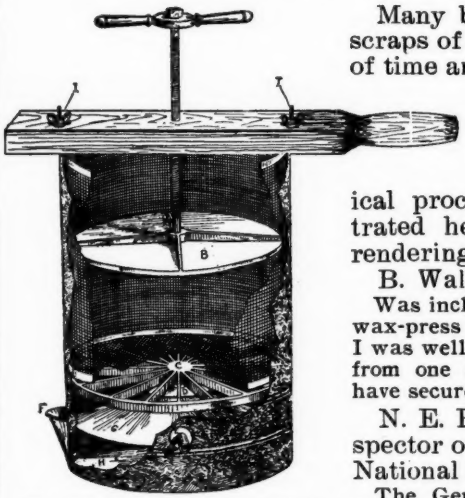

Fig. 169.—The Root-German Steam Wax-press. Price $14.00. Shipping weight, 70 lbs.

Many bee-keepers allow old combs and scraps of beeswax to collect, which, for lack of time and the proper utensils, are scattered or eaten up by moth-worms. A big item would be added to the year's profits by the timely rendering of said wax by an economical process. We believe the press illustrated herewith fills a long-felt want in rendering wax.

B. Walker, Clyde, Ill., says:

Was inclined to believe at first that the German wax-press was a failure; but after a thorough trial I was well pleased. I secured 30 lbs. more wax from one day's use of the machine than I would have secured by the ordinary method of rendering.

N. E. France, Platteville, Wis., State Inspector of Apiaries, and General Manager National Bee keepers' Association, says:

The German wax press is by far the best machine or process to save wax from old black brood-combs.

Manufactured by

The A. I. ROOT CO., Medina, Ohio, U. S. A.

We are now paying 30c cash, 32c trade, for average wax delivered at Medina.

L. Stachelhausen,

whose picture appears alongside, has an article in the BEE KEEPERS' REVIEW for April, telling how to prevent both natural swarming and increase, yet get the best results in comb-honey production. It is a modification of, or addition to, slowly swarming, wherein the young bees, as they hatch in the old colony, are transferred to the shook swarm on the old stand, thus keeping that booming and piling up the comb honey.

Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the sender to the REVIEW one year for only 90 cents.

W. Z. Hutchinson, Flint, Michigan.

QUEENS

Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa., writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr.——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens Before July First.

	1	6	12
Selected Warranted	$1 00	$5 00	$9 50
Tested	1 50	8 00	15 00
Select Tested	2 00	10 50	
Extra Selected Tested—the best that money can buy	4 00		
Two-frame Nuclei, no Queen	2 50	14 00	25 00

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin=the=Queen=Breeder, Parkertown, OHIO.

For 1903 You Require Supply **PERFECT QUEENS**

Until further notice, to keep up with orders for Golden queens from old customers who find them to be splendid workers, I shall discontinue the other yards. I can send Holy Lands and Carniolans mated in this yard at the same prices. These are good crosses. Untested queens, $1.00 each; tested, $1.25. A few choice breeders, $2.50 each.

GEO. J. VANDE VORD, Daytona, Fla.

Golden or Leather-colored Honey Queens

bred from the Laws strain. Untested, $1.00; tested, $1.25; selected tested, $1.50; extra selected, $2.00; breeders, $2.50 to $5 00. None better.

H. C. TRIESCH, JR., Dyer, Ark.

"Dollar Italian Queens"

Ready for delivery May 10. Send for price list.

E. E. Lawrence, : Doniphan, Missouri.